

# STOP FISHING!

**Eighty boats lie idle as Peru halts catching for the meal factories**

PERU'S Fisheries Ministry has banned all industrial fishing from July 7.

Eighty purse seiners were made idle. Sixty of them had been fishing for pilchards, jurel (jack mackerel) and Pacific sardine all along the Peruvian coast, and 20 were working off Ilo in the south for anchovy.

Although the fleet is now owned by small private companies, having been sold by the state company, the fishing is controlled by the Ministry.

Catches are sold to Pescaperu, the state anchovy company, for reduction to meal.

#### Exceeded

This year's industrial catch has exceeded one million tons, according to Minister of Fisheries Vice-Admiral Francisco Mariategui. Half of it consisted of anchovy taken only in the Ilo area.

Meat production at mid-June totalled 240,000 tons.

Fish oil production to the end of 1978 was expected to be 40,000 tons, which would only partly meet local demand.

The Ministry of Food has therefore approved the import of 9,500 tons a month of vegetable and soya oil to make up the shortfall.

One result of the shortage of raw material for meal plants is more effort by factories to cut down on waste.

The Swedish firm Alfa Laval is, for example, supplying Pescaperu with 14 plants for the recovery of pump water in the meal factories. From this the Alfa Laval plants extract solids and oil left after the pumping of the fish.

**Norway to recruit foreign crewmen**

NORWAY'S Labour Directorate has given trawler owners permission to recruit Icelandic, Faroese and Danish fishermen to work aboard their trawlers when the regular crews are on holiday.

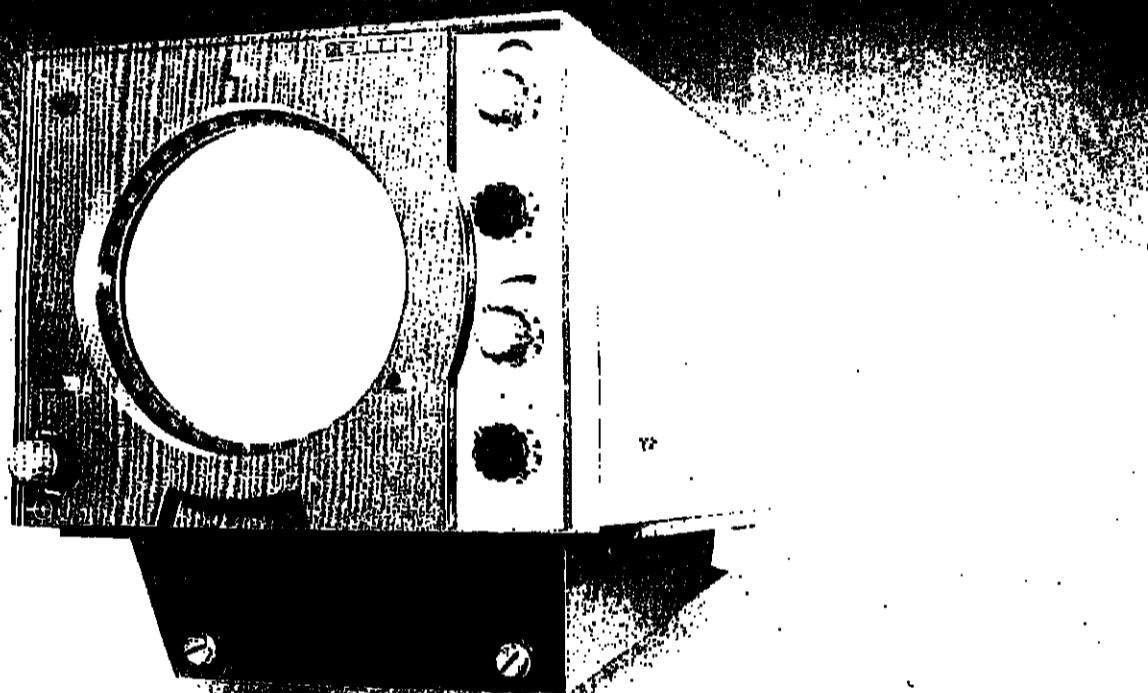
The foreign crews will work mainly during the summer. But the chairman of the owners' association has said it may be necessary to hire abroad for the rest of the year, too.

Before permission was given, it was made clear that no Norwegian fishermen were available. The Norwegian authorities assist owners with the cost of bringing the foreign crews over.



Fisheries Minister Francisco Mariategui — year's catch has topped one million tons

## At Last, Commercial Stamina In A Small Radar Furuno FR-160



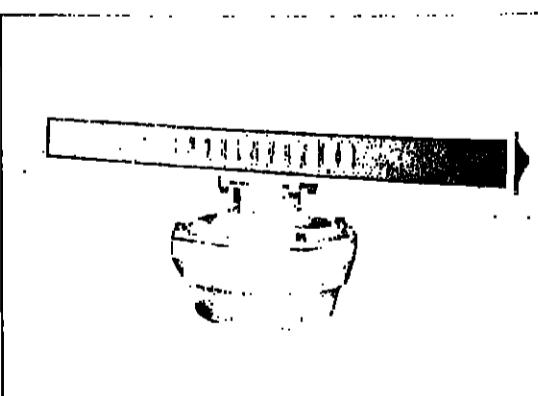
### Furuno's Low-Cost, High-Performance 16-Mile Marine Radar

Small and compact, yes. And lightweight, too. But into the FR-160 is packed Furuno's latest integrated-circuits technology and its proven solid-state microwave components.

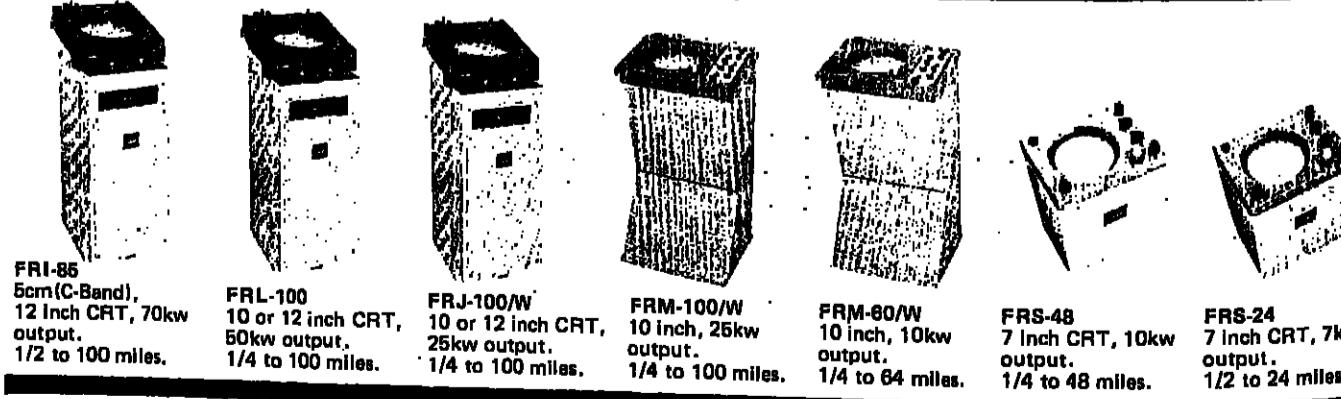
The FR-160 offers five ranges up to 16 miles (with off-centering up to 25% on all ranges, max. 20 miles)—and built to out-perform any small radar on the market today.

Just check out the big-ship features that this "little giant" has to offer:

- 7 inch presentation (12 inches with standard magnifier);
- Dual transmitter pulse lengths for sharp target definition at all ranges;
- Circulator T/R front end for larger crystal life and ultra-high sensitivity;
- Rugged all-metal 2-unit construction;
- Lightweight, low-profile antenna, with 24 rpm rotation for renewed display every 2.5 seconds;
- Sea and rain clutter controls;



The Furuno Radar Family Now Includes



The future today with FURUNO's electronics technology.  
**FURUNO ELECTRIC CO., LTD.**  
B 62, Ashihara-cho, Nishinomiya City, Japan  
Cable: FURUNO NISHINOMIYA, Telex: 5644-326

Published by Arthur J. Heighway Publications Ltd., 110 Fleet St., London EC4 2JL. Printed in England.

# fishing news international

September 1978 Vol 17 No. 9

75p monthly

HESPERUS  
Flashing BUOYLIGHT  
FROM  
**COSALT**  
GRIMSBY ENGLAND

# USSR BUYS SHRIMPERS IN SPAIN

#### Purser protest

Norwegian purse seiners pack Bergen harbour in demonstration against mackerel controls — Page 2

#### PERU MEAL FACTORIES

Boat owners ask state to nationalise fish meal factories — Page 3

#### Spain and EEC

Out and back again confusion over Spanish fishing in 200-mile zone — Page 7

#### Vartdal quits



Norway's Director of Fisheries returns to the family business — Page 19

#### RED SALMON



How Russia is boosting her more valuable fish resources — Page 22

#### Dearer than steak!

OECD report reveals further rises in fish prices — Page 28

#### Marco builds a big one



Largest crabber yet from Seattle yard — Page 32

#### British back to Iceland

But this time to sell fishing ideas and equipment — Page 37

IN 1975, alongside the Inrybpron fishery exhibition in Leningrad and lost among the factory ships and gleaming super-trawlers, was a small shrimp boat. She was a prototype built in Spain and she had been brought all the way from Las Palmas.

When the exhibition ended, the boat was given to the Soviet industry for test fishing.

This initiative, almost unnoticed at the time, has now brought an order to Spain worth 11 million US dollars for 12 boats based on the prototype. And this first contract could lead to others for up to 100 such boats.

The contract was signed in Moscow by Bartolome Lloret, President of Construcciones Navales del Sueste SA of Alicante and Oleg Kropotov, President of Sudoinport.

#### First big orders

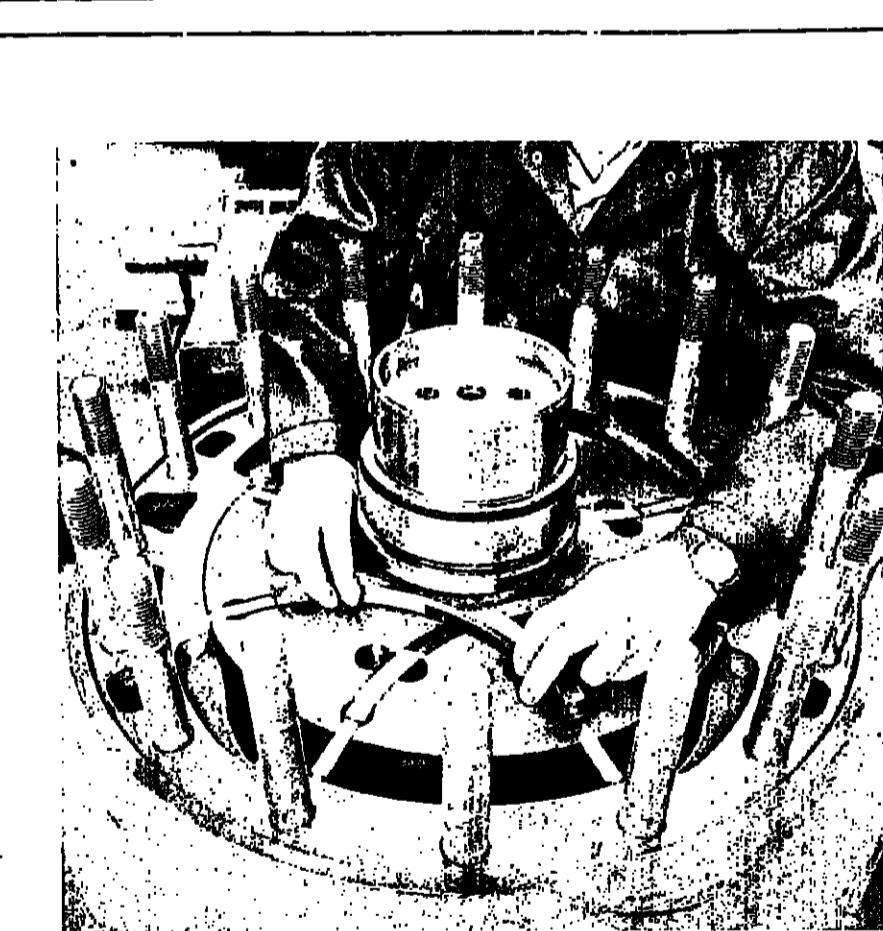
It is the first large-scale order from the USSR for Spanish vessels and is greatly welcomed by a shipbuilding industry in deep crisis through lack of business. The 12 boats are due by 1982.

Sovhispan, a firm owned equally by the Soviet Ministry of Fisheries and Spanish interests, introduced the prototype to the USSR. It was formed in 1971 and has offices in Madrid, Moscow and the Canary Islands.

"This contract is the beginning of closer cooperation between the two countries for shipbuilding and repairing," said Sovhispan's President Jesus Rodriguez Beltran. "Already in 1978, many more Soviet ships are being repaired in the Canary Islands, and this confirms the importance of the fishery sector in the relations between Spain and the USSR."

#### Sort this one out!

IT WAS reported just recently to Bermudan registered British interests that the 3,000-ton capacity fish meal factory ship *Norglobus* has been chartered to produce fish meal from capelin in the northern Barents Sea for the Faroe Islands. In the Barents Sea, the ship will be supplied by Faroe vessels taking capelin which they have been allowed to catch in exchange for 60,000 tons of blue whiting. The ship was sold



**Norwinch**

#### LOW PRESSURE HYDRAULIC DECK MACHINERY

The Norwinch low pressure hydraulic deck machinery is designed to meet the needs of the modern ship. It is a compact, reliable and efficient unit, suitable for a wide range of applications.

• Norwinch deck machinery includes a range of pumps, valves, filters, hoses and fittings, all designed to withstand the harsh environment of the sea.

• Norwinch deck machinery is available in a variety of sizes and capacities, from small units for deck cleaning to large units for heavy lifting operations.

• Norwinch deck machinery is designed to be easy to install and maintain, with a range of accessories available to facilitate installation and maintenance.

For further information please write or call:

**A.S BERGENS MEKANISKE VERKSTEDER AKER GROUP**

Tel: 18 00 00 - Telex: 42 735 - P.O.Box 650, 6001 Bergen, Norway.



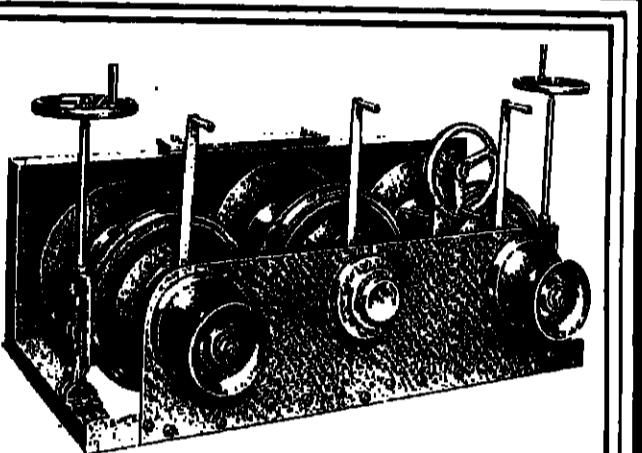
**Biggest  
but  
not best**

ONE OF the biggest landings from a single vessel ever seen at the British port of Hull was discharged last month by the Icelandic trawler *Juni*.

The 5,138-kil (321 tons) catch took two days to land from the wet fish stern trawler. But it is believed that the ship was acting as carrier for other vessels and the quality of some of the fish was poor.

Because of this, the big landing made just under £90,000 which was £32,000 less than the record set by the Icelandic trawler *Engay* with only 275 tons in July. (See FNI August).

THE Australian Parliament voted last month to extend the country's fishing limit from 12 out to 200 miles.



Specialists in mechanical winches for fishing vessels from 15 to 250 tons

NORSKOV LAURSEN ENGINEERING COMPANY

ESBJERG — DENMARK

### FISHMEAL PLANTS WITH OIL PRODUCTION SYSTEM SCHLOTTERHOSE

Incorporates the latest in technical development

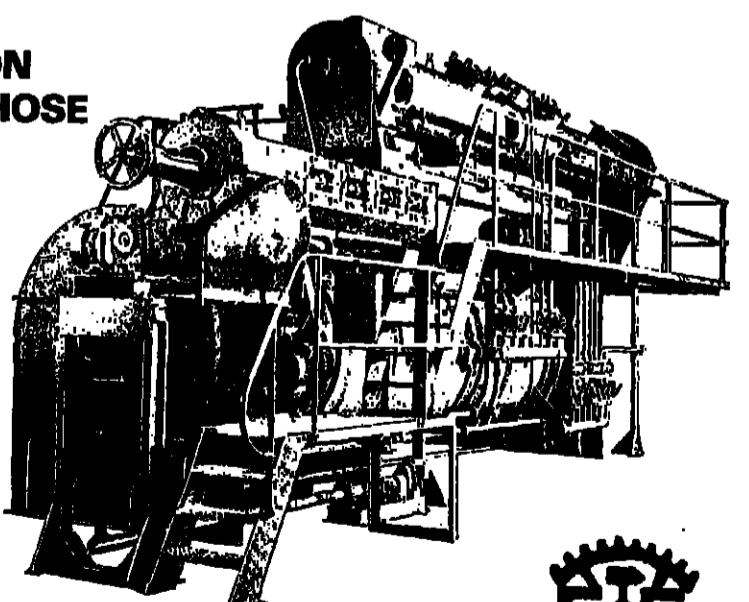
### STICKWATER EVAPORATION PLANT

Liver oil production plant with built-in separation.  
For shore operation and installation aboard fishing vessels. Schlotterhose fish meal systems are available to handle the largest capacities of raw material.

*Schlotterhose & Co.*

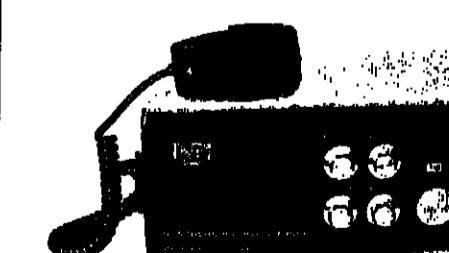
MACHINE FACTORY  
BREMERHAVEN B.R.D.

The leading continental specialists for over seven decades



First-class references  
at home and abroad

New...  
**Sideband from  
NORTHERN RADIO  
COMPANY**



- 100w PEP
- 1.6 MHZ — 9 MHZ
- 12/24 CHANNELS
- COUPLER ACCESSORY OPTION
- \$1295.00

**NORTHERN RADIO COMPANY**  
Telex 32-1160  
Tel: 206 883-7700  
14975 N.E. 40th Street, Redmond,  
Wa 98052, USA

South of  
sixty  
or bust

# Purser protest



NINETY-SIX Norwegian purse seiners, almost all the ships engaged in mackerel fishing north of 60°, left the North Sea last month and converged on Bergen.

This is the headquarters of the Fisheries Directorate and the purse seiner owners and crews were demonstrating to be allowed to go south of 60° for mackerel.

The Norwegians complained that they had to wait until September 1 to go south, while EEC vessels were already fishing the area.

Led into Bergen by the big new purse *Liber*, the fleet put up a spectacular show of the size and power of this section of the Norwegian industry.

The 96 ships had the full support of their organisations.

Their five spokesmen on the catch regulating committee and a representative of the Norwegian Fishermen's Union all arrived in Bergen to put their case to the Fisheries Directorate.

While they were meeting, coastal fishermen south of 60° threatened their own demonstration if the fleet was allowed to take mackerel there before September 1.

because they were unable to get assistance from the Blue White Fish Authority. The Norwegian government has been providing loans to yards busy and people in.

The Norwegian loan covered 80 per cent of the cost of the vessel at eight per cent interest.

Both purse seiners will be powered by British Ministry Blackstone engines of 1000hp but most of the gear handling and refrigeration machinery is being supplied by Norwegian manufacturers.

Whalsay, with a population of only 900, already has four purse seiners in its fishing fleet. Now it is getting two more. The 106 ft (32.3 metre) ships are being built in the Sibjorn Iversen yard.

The first, due for delivery in November, is for Skipper Laurence Irvine and partners; the second is for a partnership of eight young fishermen.

They turned to Norway

# Korea asks for more

A NEWLY - FORMED Korea / New Zealand Businessmen's Council will be having its first meeting in South Korea on September 22.

The Korean Ambassador in Wellington, Mr. Lee, is calling for an increased allocation of fish for Korea, on the grounds that New Zealand exports have increased rapidly while Korea's exports to New Zealand have remained at about \$12 million.

In 1977 New Zealand exported produce worth \$43 million to Korea and it is expected that \$70 million will be exported this year and possibly more than \$100 million in 1979.

Mr. Lee is pressing for an increase in the squid allocation to Korea and timed

vessel trawling fleet are working in New Zealand waters.

No mention was made however of the complaints of New Zealand fishing industry organisations on the marketing practices of Korean companies which have been fishing in NZ waters.

It is interesting to note that Russia was given a fish quota in the New Zealand EEZ taking into account both her previous catches since the UN law of the sea negotiations began and the trade imbalance with Russia buying fairly large quantities of meat from New Zealand.

This year Russia has bought this year is 32,000 tons although she practically no meat from New Zealand applied for 72,000 tons. And it was so there is some speculation over limited to 400 tons of squid. According to Mr. Lee, only 23 of Korea's 900 quotas.

### Another state with a hungry eye

### on NZ waters

his request to coincide with the talks between New Zealand and Japan.

Korea's New Zealand fishing quota

This year Russia has bought

practically no meat from New Zealand

applied for 72,000 tons. And it was so there is some speculation over

limited to 400 tons of squid. According to Mr. Lee, only 23 of Korea's 900

# STOPPED IN BARENTS SEA



TWO British stern trawlers, the *Coriolanus* and the *Arctic Buccaneer*, had a brush with the Russians in the Barents Sea last month.

The trawlers were fishing in the so-called "grey zone" with Norwegian licences when they were stopped by a Soviet patrol ship. They were inspected and then shown out of the zone.

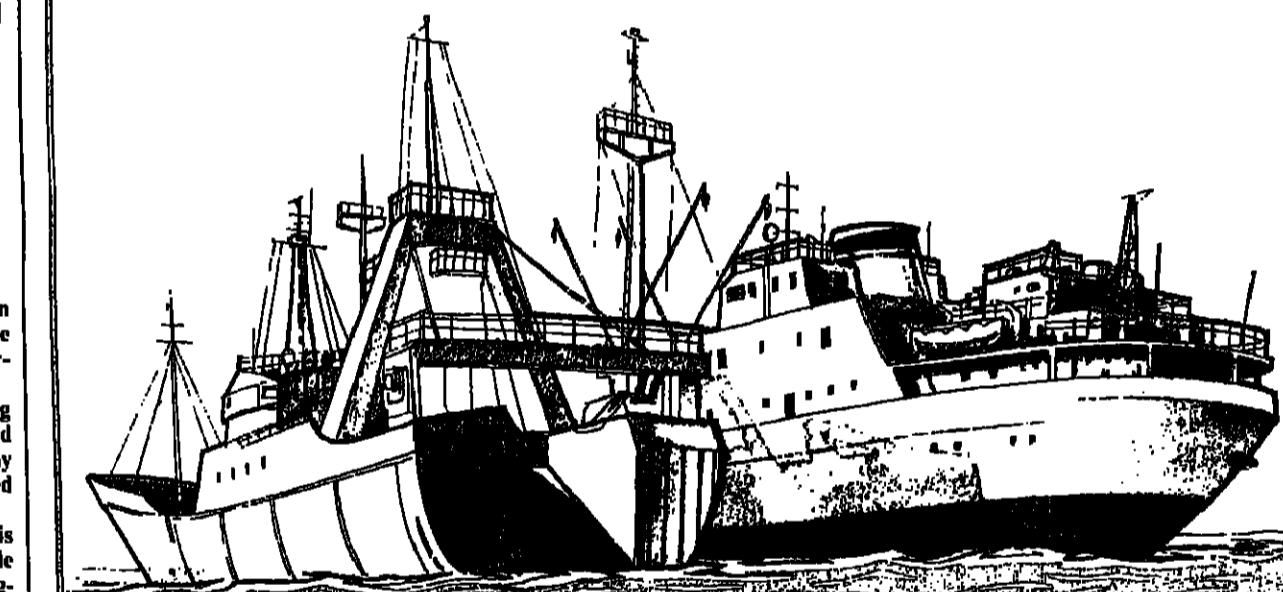
According to the agreement between the USSR and Norway, third country ships licensed by Norway to fish in the Barents Sea are to be inspected only by the Norwegians.

Both ships left the area without contacting the Norwegian authorities.

# GIVE US OUR FISH MEAL PLANTS BACK



## INTERNATIONAL REEFERS



We specialise in frozen fish transport and transhipment at sea ex freezer trawlers

We operate a fleet of 30 refrigerated vessels throughout the world

A group of international ship-owners serving the world

Whether it is frozen mackerel to West Africa, frozen tuna to the U.S.A., frozen herring, hake, shrimp or other species, we have the experience to handle your cargo.

## INTERNATIONAL REEFERS

2000 HAMBURG 50 · KLOPSTOCKSTRASSE 5 · P.O. BOX 600708  
TELEPHONE 891283 · TELEX 214417/214806 · CABLES: FRIGOSHIP

**WACO** Fish-Block-Hoist  
TELEX 238894 PHONE (04744) 2031

# Install a Cummins KT-1150-M and save 3.785 liters of diesel fuel every hour of operation.

Fuel economy plays a big part in choosing a fish boat engine. A good reason why so many owners are going with the Cummins KT-1150-M.

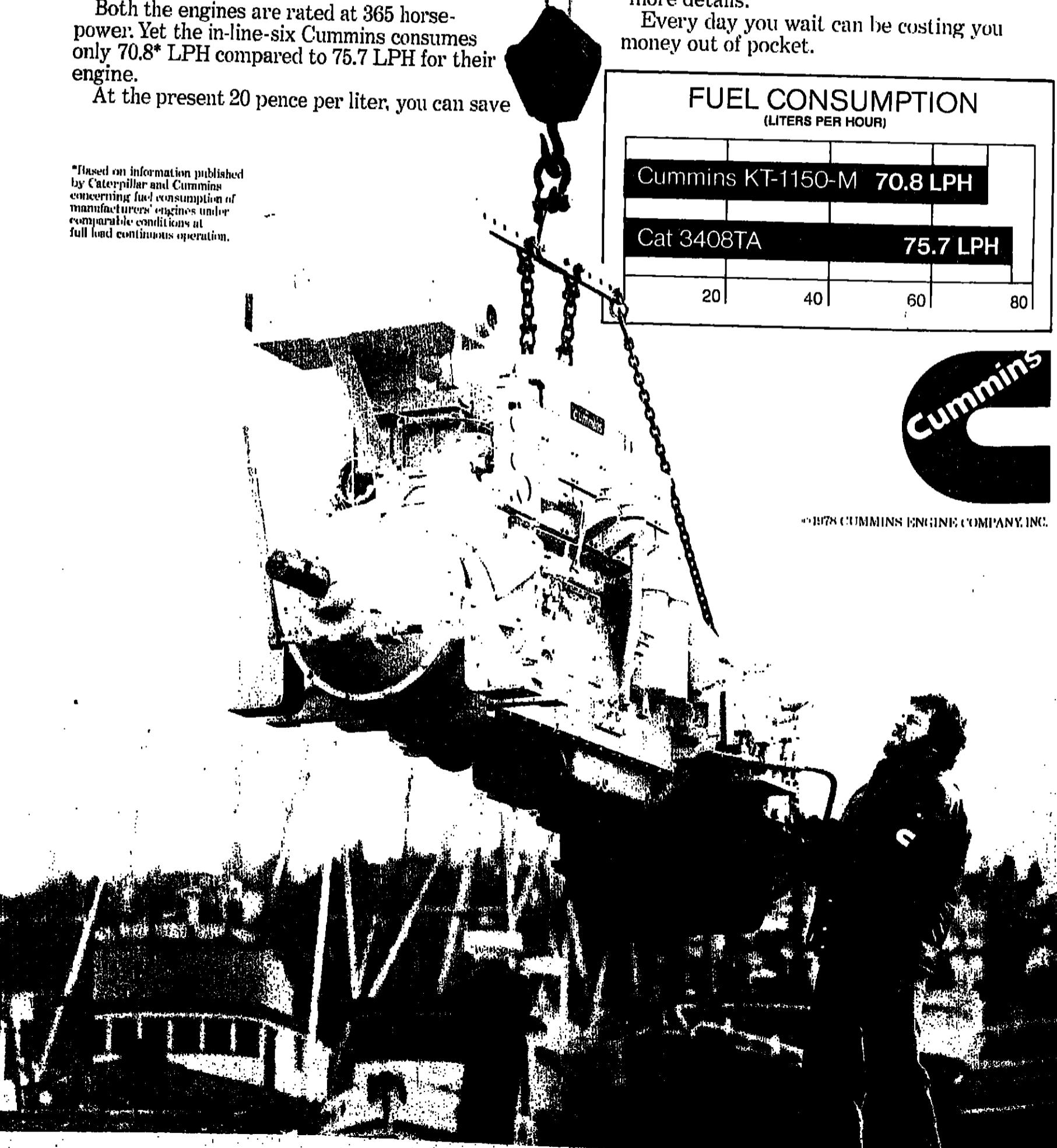
The KT-1150-M was developed as a true marine engine—with a large-displacement, heavy-duty design that's ideal for turning a fish boat screw.

Compare the fuel consumption rates between the KT-1150-M and the V-8 Caterpillar design in the chart.

Both the engines are rated at 365 horsepower. Yet the in-line-six Cummins consumes only 70.8\* LPH compared to 75.7 LPH for their engine.

At the present 20 pence per liter, you can save

\*Based on information published by Caterpillar and Cummins concerning fuel consumption of manufacturers' engines under comparable conditions at full load continuous operation.



**FUEL CONSUMPTION**  
(LITERS PER HOUR)

Cummins KT-1150-M	70.8 LPH		
Cat 3408TA	75.7 LPH		
20	40	60	80



©1978 CUMMINS ENGINE COMPANY, INC.

## comment

THE SALMON poisoning case in Birmingham, England, turned to tragedy last month when two of the four elderly people afflicted with botulism died.

They were the younger of the two couples who had sat down to tea on Sunday, July 30, and treated themselves to a 7½ oz can of John West red (sockeye) salmon.

Jesse Farmer (64) died on August 16 from bronchial pneumonia due to botulism. His wife Betty (66) died three days later. Mr. Farmer's older brother Leonard (79) and his wife Clara (72) are still seriously ill.

As we reported in *FNI* last month, the salmon was caught off Alaska and packed in a modern, well-supervised, well-equipped factory on the shores of Bristol Bay.

Cases of botulism are extremely rare. This was the first known to have resulted from eating salmon.

Other botulism cases in Britain included one tragedy in 1922 when a fishing party in Scotland ate infected potted duck paste. Eight people died.

In view of the rarity of botulism, the hospital staff and health authorities involved reacted with a swiftness that shows how well informed they were about symptoms of the poison.

Toxins produced by the botulism bacillus are the most powerful natural poisons known. The lethal dose for adult man is an incredibly minute ten millionths of a gram.

Serum from blood samples of the four victims was injected into mice who died in 3½ hours. Saline washings from the can and of salmon particles found in it killed the mice tested within 30 minutes.

Final diagnosis of the poison as that from the spores of *Clostridium botulinum* type E was confirmed through cultures from the salmon.

### Reacted promptly

But before then, John West, the company which had marketed the can, had reacted as promptly as the health authorities. Throughout Britain, it called in its salmon. From the code, it narrowed down what might have been the most immediately dangerous packs.

The British advised and warned the Food and Drug Administration in America.

As the Farmers were beginning their struggle to live, hundreds of people were engaged in an intensive investigation to find how this deadly pack had come through a series of stringent hygiene controls.

The search goes on. But, at the inquest on Jesse Farmer it was revealed that a minute hole, surrounded by rust, had been found in the can.

According to an expert from the Metal Box Company, the can was probably punctured by contact with a rough serrated surface. He could not say whether this happened before or after sterilization.

### Eighty million

According to director Barry Browning, John West has been handling canned salmon for 107 years without accident. The company sells about 80 million cans a year.

This 7½ oz pack was one of 450,000 imported from the Alaska factory and one of 14,273 in the same coded batch. A sample was inspected on arrival in the UK and was found to be slightly above average quality.

Tracing all of the 14,000 cans was "like trying to find a needle in a haystack." Some 2,300 cans had been recovered and examination had revealed no trace of toxin.

But, because of what seems like a mischance of a million and more to one, salmon sales in Britain have taken a tumble from which they may need years to recover. And the search will have to go on to determine just how it could have happened.

To blame a hole in a can is not enough. From all we know of the controls and quality standards in the industry, we believe canned salmon is a safe food.

But the public in Britain are going to need some persuading, and this will have to be backed by the evidence of the most thorough investigation into why and how that deadly salmon came to be on the Farmers' tea table!

WALCKER & CO KG D-2854 LOXSTEDT

**WACO** Fish Box Elevators

TELEX 238 894 PHONE (047 44) 20 31

## DEATH IN A CAN!

## fishing news international

Arthur J. Heighway Publications Ltd.  
Lodge House, 110 Fleet St.  
London EC4A 2JL, England.  
Telephone: 01-353 6861  
Cables: FISPROBOK, London  
Telex No: 21977

Editor Peter Hjul  
Assistant Editor David Glen  
Advertisement Director Jack Fletcher  
Advertisement Manager Michael Gard  
Assistant Advertisement Manager Michael Purves  
Production Assistant Linda Sheldrake

Subscription Information  
Subscriptions (surface mail,  
and including the UK): £10(US\$20) a year. Europe,  
fast delivery rate: £15(US\$30) a  
year. Outside Europe, airmail  
rate: £18(US\$32) a year.

Representatives in Japan  
Sun Gain Shih Ltd.,  
Tenrou-Hankyu Building,  
6-8 Chome Tenjinbashisuji,  
Oyodo-ku, Osaka, and  
Shiba Ninkatsu Building,  
13 Shiba Park,  
Minato-ku, Tokyo.

Representatives in the USA  
Graff International Inc.,  
380 Madison Avenue,  
New York, 10017.  
(Tel. (212) 661-7811).

Northern California  
Robert J. Fishive & Co.,  
22 Battery Street,  
San Francisco,  
California 94111.

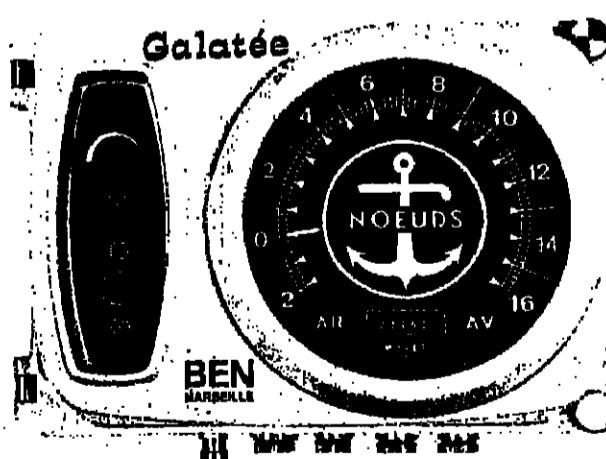
Southern California  
Ken Lehman Co., Inc.,  
2801 West Sixth Street,  
Los Angeles,  
California 90057



**Galatee**  
the electromagnetic log with  
the flat surface probe

The best compromise between specifications and prices  
for any kind of merchant ships and large trawlers.

- normal scale — 3 + 24 knots (special scales upon request)
  - power supply 110/220 V AC 50/60 Hz or 24 V DC
  - several options available including linearization kit (GalateeSuper) to suit every requirements
  - easy installation and minimum maintenance
  - worldwide service



Another log of the BEN range

**Navalec**

7, rue Lavoisier 75008 Paris - Tel. 266.10.54 - Telex 290 678

NAVALEC FRANCE

**BEN**

# Wesmar news



Using her SS230 scanning sonar, the "Susan Wood" brought in 1,600 lb (816.5 kg) of shrimp off the coast of California.

## WESMAR boosts catch in shallow waters

BECAUSE OF WESMAR's SS160 scanning sonar's ability to perform in shallow waters, Kazuo Sakai, owner and Captain of the Sakai Maru, is able to locate schools of fish other nearby fishing vessels are unaware of, which will help him to increase his catch.

Captain Sakai found this to be true after he recently installed the SS160 aboard his 20-ton purse seiner, Sakai Maru. In the past, other makes of sonar used in the shallow waters of the Chiba fishing grounds where he

fishes for sardines have had trouble not only because of the shallow depths, but because of the several hundred fishing boats in the small area causing wakes and other problems which can obscure sonar readings.

The SS160 proved itself to Captain Sakai after only a few days of use aboard the Sakai Maru, when he was confident to use the sonar in as little as 100 ft (30 metres) of water. After only a few weeks, Captain Sakai was operating the sonar in shallow depths of 30 ft (10 metres).

Later, talking to WESMAR factory representative for Japan, Phil Werdal, Captain Sakai said he endorses the WESMAR SS160 100 per cent.

"The time has come when sonar like WESMAR's is an indispensable tool for purse seining", he said.

## Why a Canadian boat exceeded her quota of herrings

"I HAD to give away more than 300 tons of herring because I was over my quota, I owe my entire catch to WESMAR", said Scott Russell, captain of the Poly B, a 65 ft (20 metre) long wooden purse seiner equipped with WESMAR's SS160 scanning sonar.

The Poly B fishes out of the Bay of Fundy, Grand Manan, New Brunswick, on the east coast of Canada.

"There is such a difference in sonars", Russell said. "Other sonars don't seem to work too well in bad weather. The SS160

works in full weather".

He said he usually sets his SS160 on the 1,200 ft (366 metre) range. "The SS160 is really good for short distances compared to low frequency sonars", the experienced sonar operator said. "Even on surface schools, the WESMAR keeps its range."

According to a WESMAR representative who was in Ilwaco recently, most trawlers fishing in the area average between 40,000 and 60,000 lb a trip, because they fish only those locations with which they are familiar. Captain Hensley, using his WESMAR SS230 recently unloaded an 88,000 lb catch, which the Mistasea brought in because she is equipped with WESMAR sonar, and able to fish areas others cannot.

"For the money you pay, the SS160 does the job. I am really tickled with the WESMAR sonar", said Captain Russell. "I'm not making up a yarn. The WESMAR SS160 seems to be the best."

WESMAR Western Marine Electronics, 905 Dexter Avenue North, Box C19074, Seattle, Washington 98109 USA Telephone: (206) 285-2420 Cable: WESMAR Telex: 329509.

Using the SS230, Captain Hensley has the advantage of being able to fish where he wants without worrying about snagging his gear.

## Unfamiliar waters open to shrimper using sonar

LAST NOVEMBER when shrimp were scarce in the waters around Washington and Oregon on the Pacific Coast of the United States, Leroy Johnson, captain of Joe

Bruney's Susan Wood of South Bend, Washington, decided to sail south toward California where word had it shrimp were plentiful.

Johnson, new to the area, had no idea where the rocks, wrecks or other hang ups might be. Using his WESMAR SS230 scanning sonar, he immediately began dragging the unfamiliar grounds.

"I had no idea where the rocks, wrecks or other hang ups might be. Using his WESMAR SS230 scanning sonar, he immediately began dragging the unfamiliar grounds.

"That's not a record haul", he added, "but we wouldn't have got that without the SS230."

## Sonar helps trawler avoid tangles

THE WATERS off the coast of Ilwaco, Washington, on the west coast of the United States are excellent fishing grounds, but also hide many underwater reefs near shoals that can damage or ruin trawl gear.

Dan Hensley, owner and captain of the 70 ft (21 metres) long trawler Mistasea, has found the answer to avoiding these underwater hang ups by using the WESMAR SS230 scanning sonar he installed several months ago.

"The reefs will really tear a net up quickly", said Captain Hensley. "With my SS230, I can avoid getting tangled up in the reefs."

The SS230 not only gives Hensley the advantage of avoiding costly repairs or new equipment because he can manoeuvre the Mistasea around hang ups, but the sonar also allows him to fish grounds where non-sonar equipped vessels can't go.

According to a WESMAR representative who was in Ilwaco recently, most trawlers fishing in the area average between 40,000 and 60,000 lb a trip, because they fish only those locations with which they are familiar. Captain Hensley, using his WESMAR SS230 recently unloaded an 88,000 lb catch, which the Mistasea brought in because she is equipped with WESMAR sonar, and able to fish areas others cannot.

"For the money you pay, the SS160 does the job. I am really tickled with the WESMAR sonar", said Captain Russell. "I'm not making up a yarn. The WESMAR SS160 seems to be the best."



Fishing out of Ilwaco, Washington, on the United States west coast, the "Mistasea" successfully brought in an 88,000 lb catch on a recent trip using WESMAR's SS230 sonar.

### IMPROVE YOUR FISHING TODAY

Learn how you can improve your fishing operations with WESMAR marine products. Simply fill out and mail this coupon today to: WESMAR Marine Systems Division, 905 Dexter Avenue North, Box C19074, Seattle, Washington 98109, USA.

YOUR NAME ..... APPLICATION .....

TYPE OF VESSEL ..... LENGTH OF VESSEL .....

I AM INTERESTED IN:

- SCANNING SONAR     CHART RECORDERS     AUTOPILOTS
- DEPTH SOUNDER     DIGITAL COMPASSES     RUDDER ANGLE INDICATORS

OTHER (please specify).....

ADDRESS ..... TELEPHONE .....

CITY ..... STATE/COUNTRY .....

## Spaniards warned off EEC waters

### AND THERE IS TROUBLE WITH PORTUGAL, TOO

ARGUMENTS over limits in several of its main catching areas were last month further disrupting Spain's fishing industry.

Captain Johnson is aided by the SS230's modulated wave feature, which greatly improves target discrimination, and WESMAR's depth range computer, which helps him determine the depth of fish in front of the Susan Wood as well as guiding him in setting his

164,580 to 99,535 tons, tuna from 31,000 to 5,500 tons, mackerel from 38,000 to 33,000 tons, and squid from 32,000 to 13,800 tons.

But there was little change in the composition of a fleet which includes nearly 100 trawlers larger than 1,000 tons, 85 between 500 and 1,000 tons, and some 1,450 vessels between 150 and 500 tons. It is this fleet of pair trawlers and other medium-range ships which has borne the brunt of the increasing restrictions on operations in the EEC limits.

With 113,000 fishermen and a catch in 1976 of 1.54 million tons, the industry is larger than any in the European Economic Community which Spain hopes to join in the early 1980s.

Off North America, despite

in agreement with Canada, the Spanish catch dwindled in once-traditional areas.

By the end of 1977, the Spanish catch had fallen to 1.38 million tons. The species declined revealed the seriousness of this fall to the catch and processor. Cod dropped from 126,838 to 80,362 tons, small hake from

worked for years and which were regarded as traditional grounds.

As FN has reported, many Spanish vessels have been arrested and their skippers fined. The penalties have been increasing, and in August the Spanish government instructed all boats not licensed to fish in the EEC economic zone to stop operating there.

The response was bitter and immediate. Spanish fishermen called, among other things for a blockade of the Straits of Gibraltar and a ban on road trucks bringing EEC fish through France into Spain. Only about 120 of some 500 vessels in Spain's northern ports are believed to be licensed. Faced with ruin, trawlers from the Basque country decided to defy the ban.

Sorting out the problem, Basque fishermen noted that the Spanish government had reacted to actions in Ireland where fines had been drastically increased. As so often happens in such cases, the fishermen decided that their vessels should move into the French sector of the EEC where some two-thirds of the fleet usually fishes.

As FN went to press, the Spanish government was reported to have lifted its ban.

EEC limits are not the only ones causing trouble for Spain. Earlier, five Spanish boats were arrested by the Portuguese and accused of operating between six and 12 miles off the coast of Portugal.

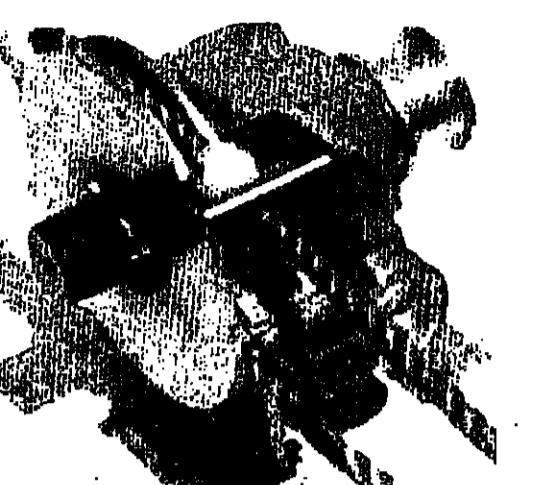
#### New law

This dispute is over interpretation of the new fisheries law in Portugal which implements a 200-mile limit, although a recent pact between Portugal and Spain allows fishing craft of both countries to work between six and 12 miles off the coast of the Iberian Peninsula.

In practice, Spain does better than Portugal out of the pact. Spanish boats from north and south quickly move in, while few Portuguese vessels went to fish off Spain.

Portuguese fishermen are therefore urging their government to protect them from a Spanish fishing invasion, by restricting fishing and by a phase-out up to 1985.

Can you sell to fishermen who haul by hand?



Our Small-Boat Hauler means 4 times more fish

(Pacific drop-line trials indicate over 10 times)

Lowest cost — can run off an outboard motor!

#### AGENTS WANTED

to exploit our world-wide patents

**TRAP FISHING LTD.**

47 Mespil Road, Dublin 4, Ireland.

## ARENCO SKINNER

not only for such fish as cod, saithe, haddock, whiting and pollack  
- but also for herring

The ARENCO SKINNER model CUS is the outcome of experience gained both in development workshops and processing plants.

An important innovation is the patented stationary knife system, a much better method than used on old machines with vibrating knives.

The ARENCO SKINNER model CUS offers many advantages

- Higher capacity
- Higher yield
- Low maintenance costs
- Silent operation

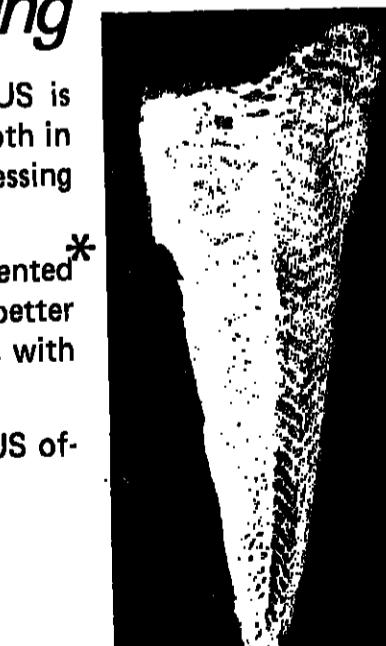
To ARENCO AB, Box 2041,  
S-421 02 V.Frölunda, Sweden  
Please send me literature on ARENCO  
SKINNER model CUS

Name .....

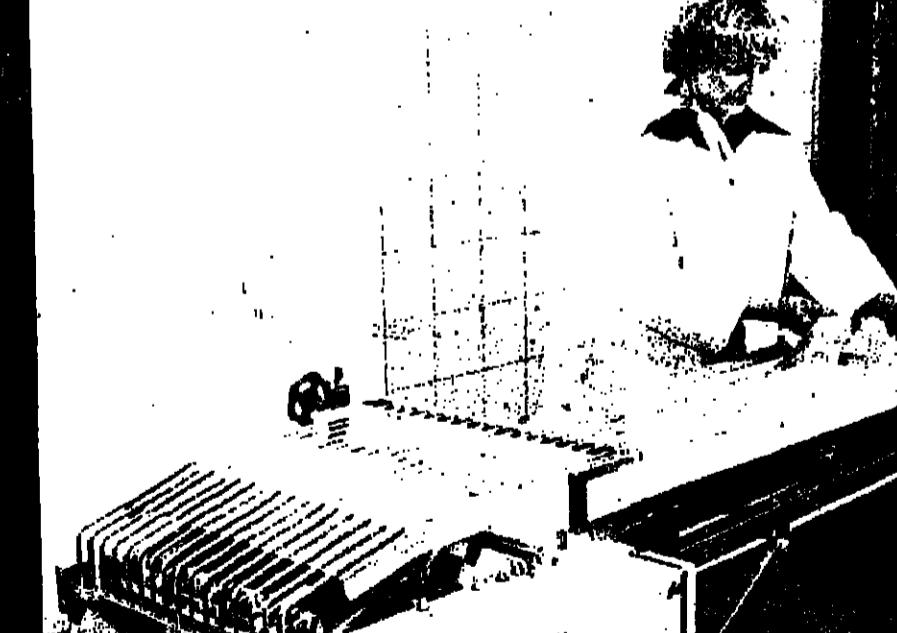
Title .....

Company .....

Address .....



**ARENCO-KM** ★★  
ARENCO AB  
MACHINERY DIVISION OF THE SWEDISH MATCH GROUP



The world famous Lofoten cod fishing which takes place in February, March and April each year has played a dominant part in the lives of thousands of Norwegian fishermen for centuries.

So the skyline of the Lofoten islands and the clean, unpolluted sea around them may well serve as symbols of the areas from which Frionor gets its supplies.

Only in these kinds of waters do we find fish of the quality we want.

Our products are made of the freshest fish caught right up here. By people who know what a prime quality specimen should look like. And how it should be processed to keep its fine fresh flavor all the way from our plants to your table.

One proof of this is the fact that the Frionor product standards are used as an unofficial measure of high quality by our competitors.

Another is that Frionor, from a modest start in 1946, has grown into what is perhaps the largest international exporter of frozen fish.

# FROM THE BONNIE, BONNIE BANKS OF LOFOTEN.

Headoffice: Frionor Norsk Frossenfisk A/L, Drammensvn. 20, Oslo 2, Norway.  
Subsidiaries: Stockholm, Düsseldorf, Basel, Grimsby, New Bedford/Mass.

**FRIONOR**

# Fishing orders keep Spanish yards in work

SPANISH shipbuilders are sharing in the worldwide problems of their industry. They will probably start 1979 with an order book of only 700,000 gross tons which represents about 40 per cent of capacity. But some of the smaller yards turning out fishing and other specialised craft have not done so badly.

Vigo is a traditional building centre for fishing craft. There, firms such as Santo Domingo Construcciones Navales with 14 vessels and Construcciones Navales P. Frire with six, have lists of orders. Admittedly some of these are at the finishing stage, but the yards have hopes of future orders.

The yard of Hijos de J.

Barrera has been completing the last of the huge order placed by Cuba for super trawlers. The main contractor was the Vigo firm Astilleros Construcciones. The initial order, placed in 1973, was for 21 factory stern trawlers of 106.86 metres overall and powered by 4,000 hp Deutz diesel engines. Sixteen of the ships were built by ASCON and five by Barreras.

Subsequently, a further five similar ships were ordered, with one to come from Barreras and four from ASCON. The contract, between the state fishing organisation Marpesco of Cuba and ASCON, was believed to be worth the equivalent of more than US\$200 million.

But the ASCON yard has been afflicted with labour troubles among its 1,800 workers. Earlier this year they went on strike which, by July, had lasted for six months.

## Cancelled

The Cuban trawlers (each worth 660 million pesos) should have been delivered last year and the Cubans, still waiting in July, have told ASCON that their contract had been broken. As they did in Peru, when labour troubles caused delays in yards there, they said they considered the contract unfulfilled and cancelled their order.

With four partly-finished ships on its hands, ASCON has entered a bankruptcy statement.

Despite this difficulty, Cuba remains interested in buying from Spain. Directors of Marpesco recently visited Vigo with the aim of placing fresh orders with other yards. The director of the Cuban fleet, Señor don Manuel Nieto, also said they will continue to use Vigo as a repair base.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorías Vulcano, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcano has built a number of tuna purse seiners and trawlers.

## Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value

## Prawning curbed

NORWAY'S Department of Fisheries is refusing any further applications in 1978 for prawn trawling concessions because of the risk of overfishing.

Most of the fishing this year has been in the "grey zone" and the Soviet zone of the Barents Sea. About 150 boats have concessions.

In the first half of 1978, Norway exported about 1,900 tons of fresh and frozen prawns worth 26 million kroner (about £2.5 million), and 1,400 tons of shelled prawns worth 44.5 m. kr (about £4.4m).

### USSR visit

A GROUP of US Congressmen has been to Russia to look at the Soviet fishing industry.

The Americans were particularly interested in seeing how the USSR carries out research into fish resources.

We've seen wood, steel, glass — even concrete, but...

# What about a boat of rubber?

## SOMALIA FLEET RE-ENGINEED

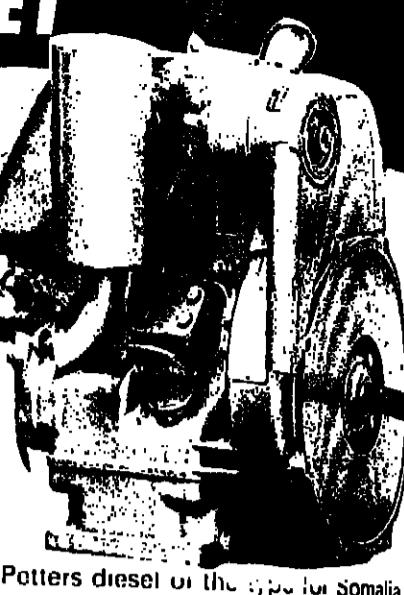
BRITISH small engine manufacturer, Petters Ltd. (Marine Division), has secured its biggest ever export order.

The contract is for 150 inboard diesel engines, spare parts and stern gear for inshore fishing boats in Somalia. It is worth very nearly £400,000.

The order, supplied through Britain's Overseas Development Ministry (ODM), is part of a major FAO/UNDP fisheries project.

Petters' low-cost, cast iron, air-cooled engines are type PJ2M, each of 22.5 bhp (16.8 kW).

They are expected to be shipped to Mogadishu over the next few months.



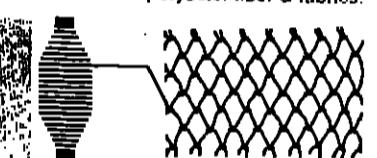
Petters diesel on the type for Somalia



### Teijin puts new profits in your marine products line.

Use Teijin Tectoron\* or Nylon fibers to supply your commercial and leisure customers with seagoing ropes, sails and nets that are tough, shrinkproof, resilient, water-resistant. Easy to work with—easy to sell. For the long haul, capitalize on the famous Teijin name, and the support its consumer campaigns can give your products.

\* Tectoron is TEIJIN's registered trademark for its polyester fiber & fabrics.



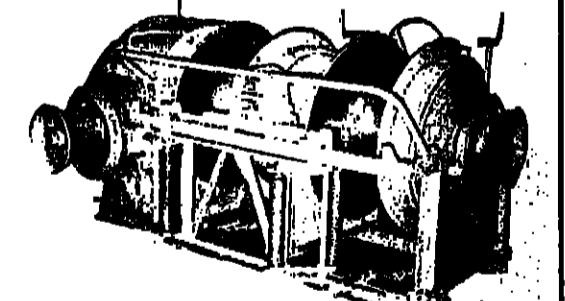
### If you can't beat them...

SOUTH KOREA is joining three international fishery organisations this year in an attempt to strengthen her operation with other coastal fishing states.

She is to send a delegation to the Inter-American Tropical Tuna Commission (IATTC) in October, and she will apply to join the International Whaling Commission.

A South Korean delegation will also be sent in December to the annual meeting of the International Commission for the Southeast Atlantic Fisheries (ICSEAF) in Madrid for talks on place.

## SIMPLY THE BEST



Type 86 combined seine and trawl winch.  
Hydraulic—variable speed control.

WIRE CAPACITY—650 fathoms, 1/2" wire, or as required.

WIRE PULL —Trawl drums 14 tons, seine drums 2 tons.

CLUTCHES —Friction or dog clutches to skipper's requirements. Third drum can be added on request.

**JENSEN**  
**winches of SKAGEN**

ANDREAS JENSEN & SØNNER A/S  
9900 Skagen, Denmark. Telephone 06 44 20 77.

A Leader Today... For a Better Tomorrow  
**TEIJIN**

For further information, write Net & Cordage Department,  
TEIJIN LIMITED  
11, Minami-honmechi 1-chome, Higashiku, Osaka, 541, Japan

# Confusion as Ministers issue opposing statements... LAST-MINUTE HITCH IN NZ-JAPAN FISH-TRADE AGREEMENT

FISHING talks between Japan and New Zealand opened in Wellington on July 20 and continued until August 10 without complete agreement being reached.

The negotiations followed a recent agreement between the Japanese Agriculture and Fisheries Minister, Ichiro Nakagawa and NZ Prime Minister, R. D. Muldoon on trade relations.

The New Zealand delegation was headed by I. L. G. Stewart, Assistant Secretary of Foreign Affairs. The Japanese party was lead by Ambassador to New Zealand Umeo Kagei and included five representatives of the Japan Fisheries Agency and nine advisors from the fishing industry, representing squid anglers, drop-liners, long-liners and trawler operators.

Details of the agreement between Mr. Nakagawa and Mr. Muldoon have not been disclosed. It seemed, however, there was an understanding that there could be more favourable treatment by Japan for New Zealand, over access for primary products such as beef, dairy products and other agricultural products, forestry products and fish.

"There is considerable interest in the construction of RVR boats throughout this region," says Lars Engvall, manager of the FAO/UNDP project.

The design being considered for the fishing boat hulls calls for a framework of steel tubes or hollow sections welded into a rigid unit and covered with mesh.

Plywood can also be used for making the frame, which is then covered with a reinforced rubber compound and vulcanised so that the structure is rigid, light in weight, robust and of great strength.

An unexpected last minute hitch occurred on August 10 when the NZ Prime Minister, the Foreign Minister and Minister of Overseas Trade, B. E. Talboys said that one clause in the agreement was not precise or clear enough. This clause dealt with trading access for New Zealand primary products.

A question had arisen about Japan's attitude because of statements made by her Minister of External Economic Affairs, Nobuhiko Ushiba who arrived in Wellington on August 2. The impression gained from these

statements was that Japan would take a long time to give some relief on duties on New Zealand fish imports and on access to the Japanese market for other primary products.

There seems to be no doubt that Mr. Ushiba's statements have dramatically changed the situation and caused the New Zealand Prime Minister to ask for the insertion of an additional clause into the agreement linking trading

access to Japanese markets to fishing access in the New Zealand 200-mile zone.

The Japanese government rejected this clause on August 11 and Ambassador Kagei suggested that it was now over to the New Zealand government to re-start the suspended talks.

On August 19, Mr. Muldoon announced that the agreement reached on August 10 would be signed without

Gutting large winter season cod in a Lofoten factory. Should supplies come from large trawlers or inshore boats?



### Leave cod for the Lofotens

THE PRESENT large-scale trawling of Arctic cod in the Barents Sea is a waste of labour and capital, according to a report published by the Bergen University.

Dr. Rognvaldur Hannesson, the author, sees the question of how best to fish the Arctic cod as being one of great significance for the whole

Norwegian economy.

He says that the spawning cod (skrei) fishery off the Lofotens and Vesterålen in winter is far more efficient than deepwater trawling.

Norway, he argues, must take the lead in striving for a reduction in the size of the trawler fleet — both Norwegian and foreign — by as much as 50 per cent.

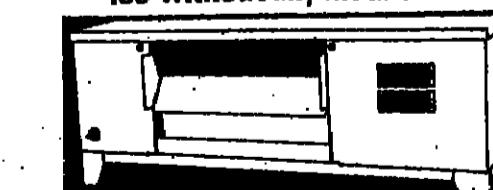


You know what quality is

PROMAC

Safe and dependable,  
typical Dutch reliability  
Dry and subcooled ice (14°F)  
always available

Produce fresh water and seawater ice without any modification



**PROMAC**  
NEDERLAND BV

P.O. BOX 22 ZALTBOOMMEL HOLLAND

TELEPHONE: 4180-3855 TELEX 50110

Member of the Van Voorden Group

## Maine cod closure

FISHING for cod in the Gulf of Maine, within the United States 200-mile zone, was stopped in mid-August and will remain closed for the rest of 1978.

The year's cod quota for the Gulf was set at 8,000 tons. This was reported by the National Marine Fisheries Service to have been exceeded by 488 tons by July 31.

Regulations governing the fishery were applied to support the management plan of the New England Fishery Management Council.

# Fishermen away as their boats burn

**SMALL-SCALE** fishermen on the island of Kovilumalai in the Karathivu group of islands north-west of Sri Lanka have had their boats, homes and belongings destroyed by fire while they were celebrating a feast day.

## SUMATRA PROJECT GETS UNDER WAY

THE Asian Development Bank has approved technical assistance to study and prepare an integrated fisheries project for the Indonesian island of Sumatra.

FAO is to take part in the project whose first stage will be a comprehensive study of fisheries in the Sumatra area within a review of overall fisheries development in Indonesia.

Kovilumalai in the Karathivu group of islands north-west of Sri Lanka depends on fishing to provide a subsistence for its 2,000 people.

Men, women and children all participate in the fishery which supplies dried fish to Kalpitiya, about 30 miles south of their island village.

But once a year they all sail off to the shrine of St. Anthony at Pallikkandal. This year, while they were celebrating the feast of St. Anthony, fire gutted huts, belongings and boats.

The story, however, could carry a happy ending.

Their findings will provide the basis of the second stage — a feasibility study of an integrated programme.

The project should benefit small-scale fishermen and fish farmers, as well as boost supplies of fish for domestic consumption.



The P15 is a proven marine engine in the BAUDOUIN range. Like all BAUDOUIN engines, it is supplied as a complete propulsion unit to satisfy your particular requirements.

The P15 is the latest development from BAUDOUIN engineers and results from systematic research and continuous product improvement programmes. The P15 is a dependable marine engine built by BAUDOUIN the specialist in marine propulsion.

**MOTEURS  
BAUDOUIN**

Group SEC Diesel Limited  
165, BD. DE PONT-DE-VIVAUX - 13010 MARSEILLE - TÉL. (01) 78.90.91 - TELEX MOBOD A 410.94 F

## TRAP FISHERY ROW REACHES FLASH POINT

### Authorities move in on US catching gear disputes

TRAPPING for fish could soon become a hot issue in United States Gulf of Mexico bottom fisheries, reports *FNI*/correspondent Jeffrey A. Fisher. Initial trials have resulted in good catches — perhaps too good for some.

Pleasure boaters believe the traps are a navigation hazard.

Conservation groups and sport fishermen claim they wipe out the fish on reefs.

Other commercial fishermen say they are a nuisance.

Shrimpers say they hinder trawling. But scientific studies support none of this. And the authorities don't know what to believe.

Traps are not new to the south Atlantic and the Gulf of Mexico.

Crawfish and stone crab wood-slat traps are customary in Florida, the Bahamas, and throughout the Caribbean area.

Small rectangular wire traps are the principal method of harvesting blue crabs and eels.

#### Emotional

A recent flare in tempers among shrimpers and stone crab trappers has highlighted the emotional aspects of the problem.

Authorities had to intervene to avoid more serious problems in the Florida Keys area.

There promises to be a political battle in the various state legislatures over the trap issue in the near future. There may also be some battles at sea.

Meanwhile quick action by fisheries authorities at local, state and national levels has avoided what could have been a violent confrontation in another area in the south.

In South Carolina, pleasure and commercial crabbers were involved in bitter disputes

The "Inca" 800 series — four seam, high lift, combination trawl. One of a fine range of trawls for inshore fishing. Designed especially for cod, bass, whiting, cuttlefish, squid and flatfish.

**INTERNATIONAL  
FISHING VESSEL BROKER**  
WE OFFER YOU A WIDE  
RANGE OF WELL  
MAINTAINED VESSELS  
IN STEEL OR WOOD FOR  
ALL KINDS OF FISHING

WRITE FOR OUR  
INTERNATIONAL SALES  
LIST WITH OPEN PRICES

**BÆKBY  
ILLEBORG**

SAMSOGADE 2 DK 6700 EBB JØRG, DENMARK  
PHONE: (06) 336111, TELEX 54187

## No cuts in Sri Lanka's fish prices

### It's an incentive to catch more, says minister

THE government of Sri Lanka does not intend to bring down prices of fish on the stalls of the Ceylon Fisheries Corporation. They will be kept the same as prevailing prices.

Minister of Fisheries Festus Perera said at a press conference at the Ministry offices in Colombo last month that the aim is to foster a realistic relationship between the producer and the rates the consumer has to pay. It will also be an added incentive to catch more fish.

Mr. Perera said that he was working on a new programme for the development of inland fisheries.

Breeding centres at three sites are to be expanded, and a conference is being planned which will include MPs of all coastal areas.

The Corporation, he explained,

owned four trawlers and two tuna

vessels. Two of the trawlers had been taken out of commission and the other vessels would be put back into service.

To accomplish this, and other developments, the Corporation had appealed for private individuals to come forward and work in co-operation with it.

"Unless we collaborate with the

private sector, the Corporation will

have to be closed down," he warned.

Commenting on Sri Lanka's present catch, the Minister said that the industry was providing for only about half the country's requirements.

The first task of the Corporation was the distribution of this catch at fair prices; the second was to increase supplies.

The Corporation proposed to spend

Rs 20 million (about £680,000) for the purchase of engines, nets and other fishing gear as a first stage of development.

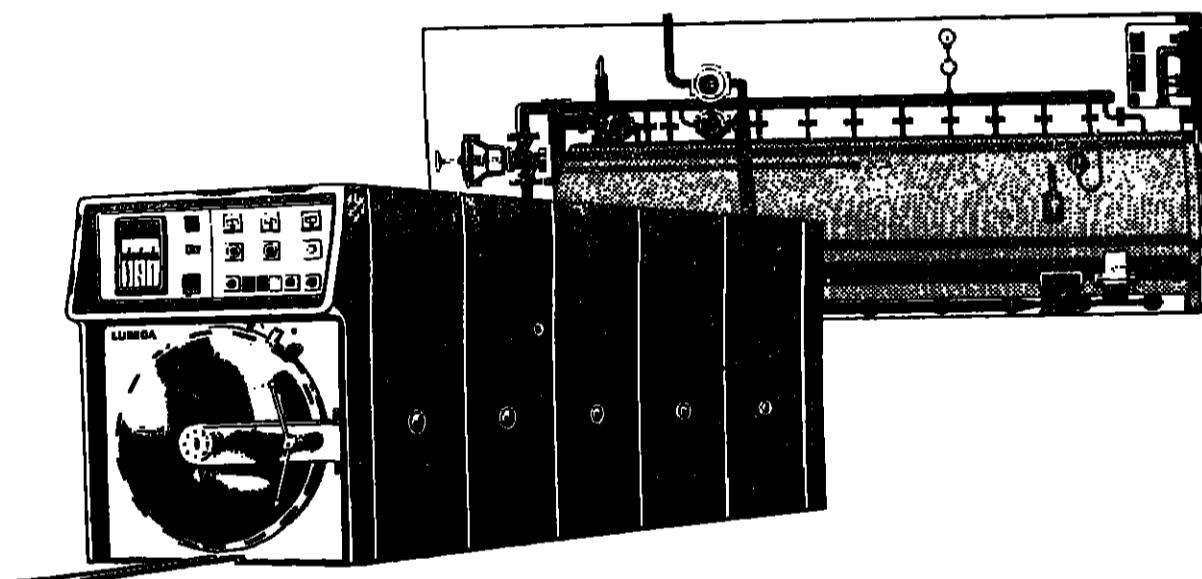
Some 2,000 outboard motors were being distributed; and 500 engines of 30hp were also going out to make a much larger catch possible.

Referring to earlier boat-supply programmes, Mr. Perera said that 250 of the 3½-ton boats were out of commission. These, apparently, went to co-operatives, which have failed and the Minister blamed this on the fact that ownership of the boat was always with the co-operative.

"We hope to change the system by introducing a new method," he said. "The skipper of the boat will become its owner once the value is paid."

"The Corporation also plans to introduce a Fisheries Bank where the fisherman can save something for a rainy day."

## Are you under pressure? Try the new Lubeca generation



The newly developed steam retort LW 3003 combines all the advantages of modern Lubeca overriding pressure retorts with the special advantages of this new technique.

- 30% less working weight
- 30% less steam
- 25% less cooling water
- Processing time reduced
- Low overall height

Decide now on the system of the future.

**Lubeca Maschinen und Anlagen GmbH**  
P. O. Box 1229, D-2400 Lübeck, West-Germany

**Schmalbach-Lubeca GmbH**  
Glashüttenweg 17, D-2400 Lübeck, West-Germany  
Telephone 31061, Telex 026812

## SPECIAL REPORT BY PETER POWELL

**AN OUTBREAK** of gastro-enteritis that affected about 2,000 people in five States of Australia in July and August was blamed on Sydney rock oysters.

Since the outbreak, the New South Wales Health Commission and State Fisheries have held discussions to ensure that rock oyster in future will be safe to eat.

Reports of significant outbreaks of the illness initially came from New South Wales and Victoria and later from Queensland, South Australia and Western Australia.

In July, the New South Wales Health Commission confirmed the attacks of gastro-enteritis and suggested oysters as the cause, following which most oyster farmers and distributors agreed to a voluntary halt in sales for two weeks.

The Australian Department of Primary Industry, after consultation with the Health Authorities in New South

Wales and Victoria, suspended exports of Sydney rock oysters (*Cassostrea commercialis*) by refusing to issue certificates of condition. Primary Industry Minister Mr. Ian Sinclair said the move was a precaution until oysters could be guaranteed safe.

About one-third of Australia's oyster exports (worth about \$200,000 annually) go to Hong Kong. Authorities there destroyed stocks of Sydney oysters following the gastro outbreak in Australia. Other shipments to Singapore and London were also destroyed.

Consumption of oysters in Australia dropped sharply after the oyster-caused illness made headlines in all States. One major supplier claimed his lost revenue was \$1,000 a day, and processing staff were put out of work in New South Wales.

Domestic oyster sales in 1976-77 totalled some 10,600 tonnes worth almost \$13 million.

Retailers also noted a slackening in demand for other shellfish. There were early suggestions that heavy rain had flushed effluents into some growing areas, but batches of oysters known to have caused gastro-enteritis attacks could not be traced back to their source.

Some oysters tested in Sydney and Melbourne were found to have unacceptable high counts of the indicating organism *E. coli*. The presence of *E. coli* in large numbers is taken as an indication of faecal pollution.

Later tests suggested the direct cause of the gastro attacks was a virus, but by mid-August tests by the NSW Health Commission and other authorities had not isolated the particular virus.

A further scare was aroused among consumers when the health authorities in New South Wales and Victoria acknowledged there was a possibility of typhoid or hepatitis among people who had previously suffered from the gastro attacks. But no cases of either disease had been reported among gastro sufferers up to mid-August, and the risk was then thought to be slight.

Along some parts of the Fraser River watershed, the Indians have become so incensed that they are threatening armed retaliation against federal fisheries agents. But neither the Indians nor the fisheries appear, at this point in time, to be gathering arsenals.

The threat by the fishermen was sparked by the fact that the Chilco sockeye run predictions ran much higher than the actual figures.

**Little left**

After United States fishermen had taken their share of the run, and after Canadian fishermen had taken their share of the remainder, the Indians, who normally fished along the riverbanks for food, were told to take-it-easy. Too few Chilco-bound salmon had gone up the river to spawn.

The Indians ignored the government ban on further fishing of Chilco stocks — and caught fish.

According to law, they are allowed to fish for their food. But an executive of the B.C. Wildlife Federation said recently that 30,000 salmon were caught, legally, by the Indians along the Fraser River system. This haul totalled about 2.4 million pounds, which is enough to give every Indian man, woman, and child about 218 lb. of salmon a year!

He believes that the Indians have not reported their illegal fishing and estimates they have taken a total of more than seven million lbs. a year. If his figure is correct, it means the Indians must be selling the fish illegally.

The Indians say they are harassed by the fisheries officers.

"We will meet violence with violence," says George Manuel, president of the British Columbia Indian Chiefs. "For too long the government has ruled our lives and our homes."

Chief Manuel says the Indians fish only for their own needs, with conservation always in mind.

**LES RIMES**

## Australian Oyster Scourge hit by illness seen off

Racks of Sydney rock oysters growing near Sydney.



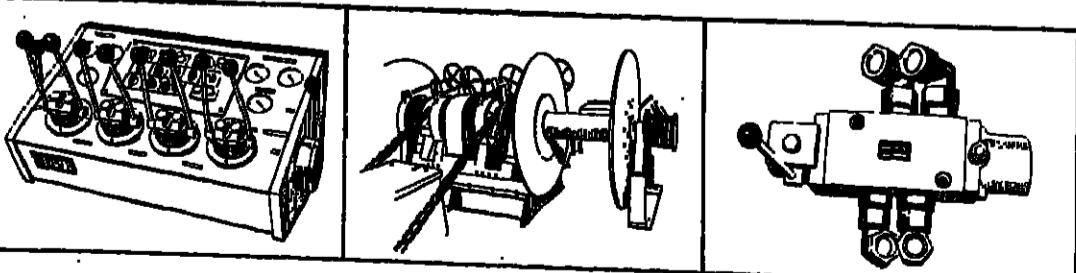
### Your Confidence... Our System

MAA

The know how and experience we have gained in supplying deck machinery and net hauling systems to vessels operating in some of the roughest sea areas of the world, means that you can have complete confidence in the reliability of our wide range of winches and power blocks to do the job.

The new Autotrawl automatic trawling system is just one example of how our engineering and design ability is working to improve fish catching techniques throughout the world.

We would be glad to advise you on all aspects of net and gear handling.



**RAPP HYDEMA**  
NORWAY

RAPP FABRIKKER A/S 8001 BODØ. TELEX 64087  
FISH AND SHIPS GEAR A/S 1820 GRESSVIK. TELEX 18036

**SALMON  
BAN PUTS  
INDIANS  
ON THE  
WARPATH**

**BRITISH COLUMBIA** Indians want to take over management of the province's fisheries resources. They allege that before the white man came there were plenty of fish for everybody. Now, the salmon populations have dwindled, pollution is spoiling the rivers, and the white fishermen are hogging the catches.

Along some parts of the Fraser River watershed, the Indians have become so incensed that they are threatening armed retaliation against federal fisheries agents. But neither the Indians nor the fisheries appear, at this point in time, to be gathering arsenals.

The threat by the fishermen was sparked by the fact that the Chilco sockeye run predictions ran much higher than the actual figures.

**Standards**

The World Health Organisation, and the National Health and Medical Research Council have set standards for oysters but these have not been applied in Australia because there had been no previous problems.

In Victoria, the Public Health Commission announced plans to adopt NHMRC recommendations on bacterial safety. The onus would be on distributors to prove their oysters were safe to eat.

A number of specific recommendations to overcome the contamination problem have been made.

### Labelling

These included:

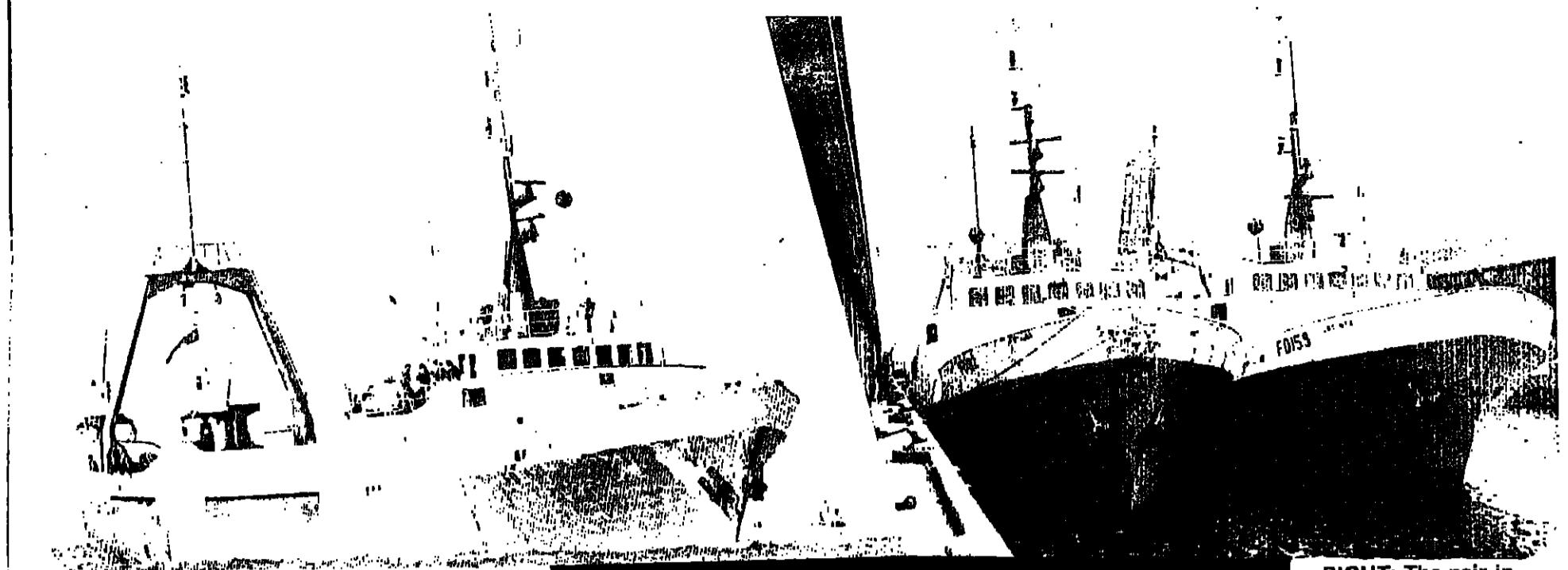
- labelling of sacks by growers to allow easier identification of sources of marketed oysters;

- a system of classification and certification of oyster beds;

- routine bacterial monitoring and research into an oyster purification system;

- transplanting of oysters from polluted areas to cleaner waters.

In South Africa, Mr. Bansfield, announced on August 3 that, following another outbreak of food poisoning in Adelaide, no oysters would be accepted from New South Wales until the Health Commission could give assurances they were free of contamination.



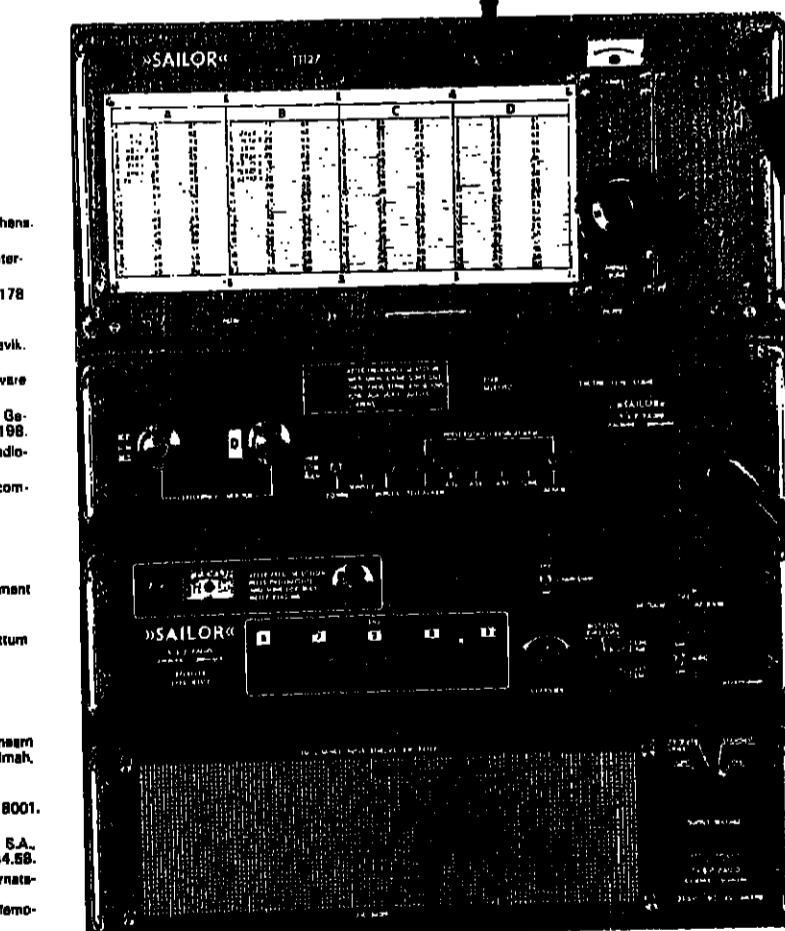
TWO BRITISH wet fish stern trawlers operating as a pair team set a record for the English north-west coast port of Fleetwood when their combined catches were sold for £79,814.

The ships are the *Gavina*-class trawlers *Jacinta* and *Fydea*, owned by J. Marr and Son and commanded by Skipper Bill Taylor and Victor Buschini, Jr.

## FLEETWOOD TRAWLERS SMASH RECORD

RIGHT: The pair in port. Working together, the Marr trawlers *Fydea* (left) and *Jacinta*, set a new earnings record for Fleetwood of nearly £80,000.

# new Sailor SSB short-wave radiotelephone 800 watt output 1.6-27.5 MHz



COMPETITIVE PRICE  
PRICE

Transmitter and  
Receiver are  
fully synthesized

By virtue of the construction of the set (patent pending), it has been possible to keep the number of components in the set to a low level, thus again resulting in high reliability and low price. Another item contributing to the competitive price is the highly developed production methods of S.P.RADIO A/S.

The company runs the largest factory in Europe for the production of Marine Radiotelephone sets, both 1.6 - 4.2 MHz and VHF. More than 90% is exported to about 60 countries.

Dimensions: Height 615 mm  
Depth 430 mm  
Width 495 mm

Power Supply: 24 Volt DC and/or 110/220 Volt AC.  
SAILOR radiotelephone sets are installed in more than 12,000 vessels every year!



### Simple Operation Larger Range Covered

For both transmitter and receiver, select frequency, tune aerial, that is all.

### Large Number of Channels - Easy Programming

The transmitter can be programmed for 240 transmitting frequencies in total, these being selected without limitation in the Maritime Bands from 1.6 to 25.5 MHz. The programming of frequencies in the transmitter can be performed within a few minutes, using the instruction manual and the programming tool provided.

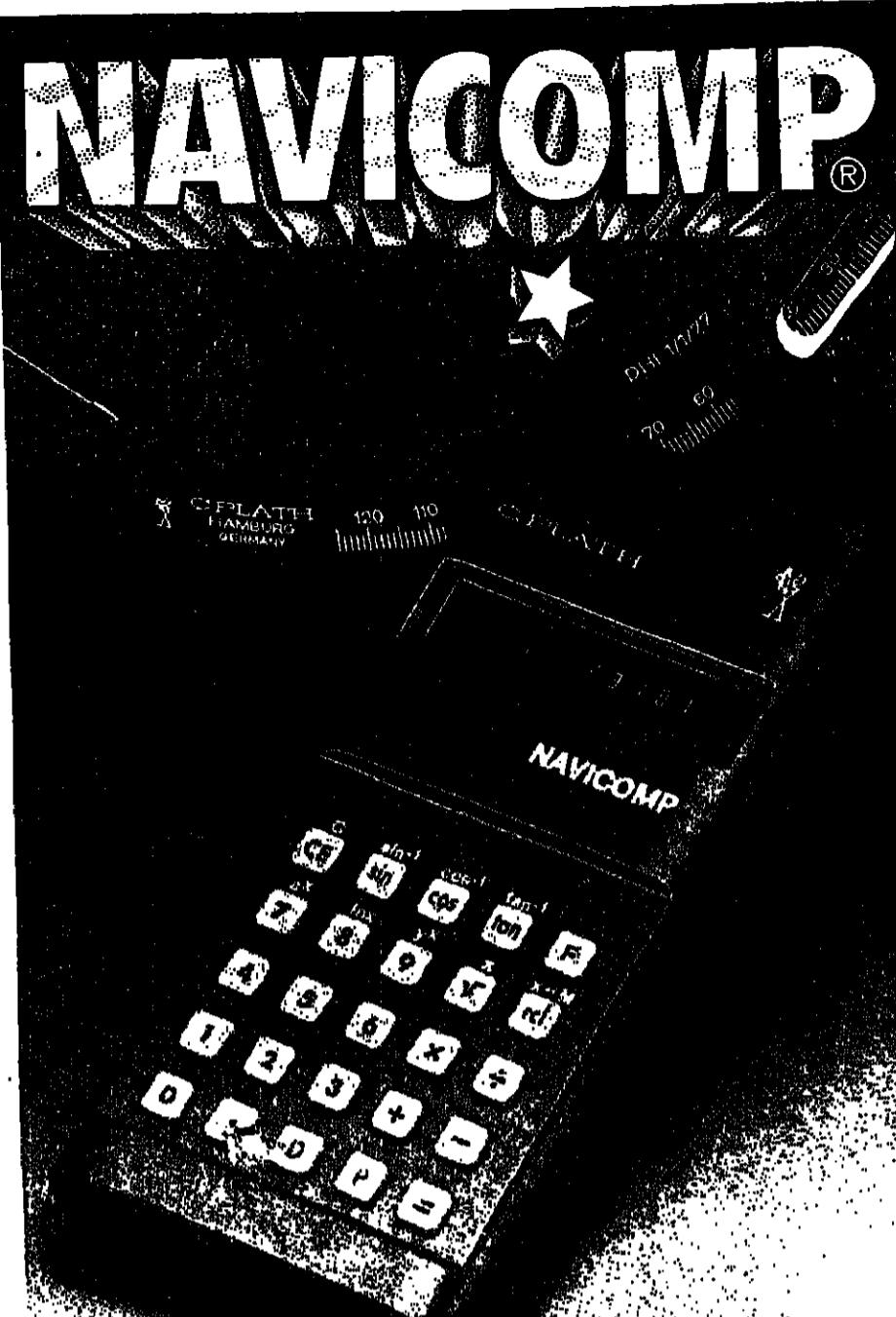
**S.P. RADIO A/S  
DK-9200 AALBORG SV**

**DENMARK**

**TEL. (08) 180999**

U.K. General Agent:  
**S.P.RADIO (UK) LTD.**,  
88, PARK LANE,  
CROYDON CR9 2XT, ENGLAND  
PHONE: 01 888 5581





## The Navigation Computer from C. Plath

- Much more than a calculator — programmed for celestial navigation ●
- Built-in digital quartz chronometer ●
- Additional scientific calculator functions ●

NAVICOMP needs no separate chronometer, no tables and no Nautical Almanac. The coordinates of the Sun, Moon, Venus, Mars and 58 selected stars up to 2049 AD are internally computed.

Semi-diameter, refraction and parallax are automatically accounted for in the calculations.

NAVICOMP allows automatic computation of a Line of position (LOP) or a position from two LOPs by the input of the following data:

- Height of eye ● Sextant Index correction
- Celestial body identification number
- Dead reckoning position ● GMT ● Sextant reading

Ask us for more details.

**C. PLATH**  
FABRIK NAUTISCHER INSTRUMENTE

Gertigstr. 48 D 2000 Hamburg 60 Phone 040/27191  
Telex 02 15202 Telegram: Sextant Hamburg West-Germany  
SMM Hamburg, Hall 6, Stand 5078

# PILCHARD SLUMP IN NAMIBIA

WHILE South West Africa moves through the delicate stages of the constitutional changes that will remove the country from South African control to eventual independence as the nation of Namibia, her fish resources alone in Southern Africa lack the new protection of a 200-mile economic zone. With the changes impending, South Africa excluded the Namibian coast when she extended her fishing zone last year. The result is that attempts to conserve seriously depleted stocks of species such as the pilchard are being frustrated by an armada of foreign trawlers. At least, this is how it is seen by the industry and its fishermen working out of the port and fishing base of Walvis Bay. The problems of this industry were outlined by MICHAEL STUTTAFFORD in FNI in July. They continue without any early prospect of solution, as he reveals in this later report.

OUT of the fiasco of the 1978 pilchard season off South West Africa (Namibia) has come determined action by the interim administration to try and prevent the total collapse of the pilchard resource.

The Administrator-General stopped the land-based industry catching pilchards from July 7,

closed the season a month ahead of schedule on July 31, and more than halved the total quota of all pelagic fish.

SWA fishermen accepted the restrictions, but they had two reservations. They pointed out that there was an abundance of anchovy readily available, and that the fish were highly migratory. Thus attempts to conserve stocks for spawning and next year's harvest could be thwarted by natural factors such as a

change in currents or in water temperatures.

Local fishermen were also furious that they had to stop their fishing while a fleet of more than 170 trawlers continued.

The total shark fish quota was set at 410,000 tons and was filed before the end of July when the season closed. But this included only 46,000 tons of pilchard compared with 194,300 tons in 1977 and 447,300 tons in 1976.

Although this year's performance appears disastrous, it is believed that the effort on the pilchard was only about a third of that of recent years.

Nevertheless, it is accepted that the once-great pilchard stock has been reduced to a dangerous low level. This depletion has been caused by over-exploitation as a result of lack of knowledge.

### Catches rose

After the collapse following the 1.5 million ton onslaught in 1968, catches rose from 250,000 tons in 1971 to more than 500,000 tons in 1975.

Initially, it appeared that recovery was being allowed to proceed along a safe and reasonable course. With hindsight, it was a disaster course.

The recovery, which was believed to be taking place, apparently based on earlier spawning years 1968 to 1972, has now thought that this assumption was wrong. Egg and larvae production were probably poor.

There is little doubt in the minds of fishermen that severe natural conditions over the past four years, coupled with over-exploitation and aggravated by the activities of foreign traders have led to the present low state of the pilchard resource.

The hope is that environmental conditions will remain favorable, that foreign vessels will heed conservation efforts and that the politicians in SWA will take appropriate action in the future.

**Council**

This action has already been initiated by the formation of an Advisory Council for South West Africa.

"We are going to put the industry back on its feet," said secretary Ben Pleunier, acting administrator-general. "The Administering Council is going to be tough, but it is going to ensure that the pilchard resource is given a chance to recover."

We are looking at the long-term potential for the country.

Meanwhile, since a small exporter of canned fish, South Africa, is now importing a product, the living capital of Walvis Bay reached 1.1 million tons in 1978, compared with four million in 1971, indicating growth to almost 10% per annum this year.

Most of the trawlers are equipped with fish meal plants. What they are doing with the anchovy they are catching is not clear. But the following account by a local purse seiner skipper gives an indication of their activity.



Director of Fisheries, Knut Vartdal — back to the family business.

# Vartdal quits as Norway's Fisheries Director

HALLSTEIN RASMUSSEN WILL TAKE HIS PLACE

THE Norwegian fishing industry was astonished early in August to learn that Fishery Director Knut Vartdal is not seeking reappointment when his five-year term in the post ends on October 1.

He is to leave government service and return to the family business, which is the operation of a factory trawler and purse seiner from Vartdal, near Aalesund.

Mr. Vartdal was only 32 when he succeeded Klaus Sumanan in 1973. During his period as director, Norway has gone through one of her most difficult periods in commercial fishing. It has been a period of intense negotiations, with the USSR, with other Nordic countries and with the EEC over catch quotas and over the effects of the 200-mile economic zone.

His decision, reports FNI correspondent Nick Wade, has aroused considerable surprise and has stimulated speculation both over the reasons and over Mr. Vartdal's future.

Mr. Vartdal's announcement came soon after the news of the departure of another Norwegian from a top fishery post. As reported last month, Herman Witzinger has resigned as head of the Department of Fisheries of FAO.

**Successor**

His successor will be assistant director Hallstein Rasmussen.

Born in Romsdal in 1925, Mr. Rasmussen has been with the Fishery Directorate since the early 1950s. He has represented Norway on numerous occasions in international fishery meetings.

Mr. Vartdal's appointment was the advocate of a tougher line in fishery matters than pleased the Foreign Ministry. With the Foreign Minister and the Law of the Sea Minister increasingly taking over important

**AUSTRALIA OUT OF WHALING**

AUSTRALIA'S only whaling station is to close. Executives of Cheynes Beach Holdings Ltd., which owns the station at Albany in Western Australia, said operations will stop "in the near future."

This was revealed to an Australian Government inquiry into whaling on the first day of its hearing in Albany.

According to executive director John Saleeba, the decision had been made for economic reasons. Two directors, who had visited Europe recently, had found there was a trend away from sperm whale oil to substitutes.

### Quota cut

The company will also be affected by the quota cut in 1979 which will cut production by about 1,000 tons.

But Mr. Saleeba did not expect the Albany station closure to end whaling in the region. Soviet and Japanese whaling fleets would probably continue this activity.

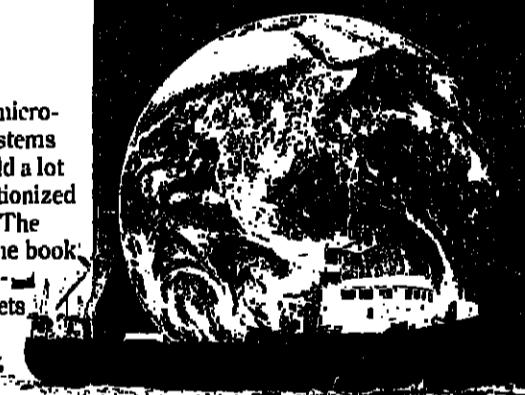
The International Whaling Commission's Division 5, which stretches from the equator to the south pole between 133 deg. E. and 90 deg. E. (roughly the South Australian border to the mid-eastern Indian Ocean) has been worked only by Australian whalers since 1976. The 1979 quota of 561 whales in the division would revert to the IWC to be reallocated.

Vartdal quits as Norway's Fisheries Director



Successor Hallstein Rasmussen, seen at the 1978 meeting of FAO's Committee on Fisheries in Rome.

**Instant communications. Precise navigation. Anywhere in the world, anytime, in any weather.**



### Communicate Instantly.

No more waiting for favorable weather or atmospheric conditions. The Magnavox MX 1102 Marisat Shipboard Communication Terminal puts your vessel into the worldwide telephone and telex communications system. You get TWX, FAX, high speed data transmission, anything available through the international network. Crystal clear and very private.

### Proven Reliability.

The MX 1102 Satellite Navigator established our technological leadership in the world of high reliability electronics for shipboard use. Now our MX 111 Marisat Communication Terminal reaffirms it.

So before you specify satnav or satcom for your vessels, find out how Magnavox is making the world smaller through pinpoint navigational accuracy and complete global communications.

Magnavox Government and Industrial Electronics Co.,

2829 Matricopa Street,

Torrance, California 90503,

(213) 328-0770.

Telex 747373.



We're making the world smaller.

**Magnavox**

Magnavox Government and Industrial Electronics Company

## Russians breaking mesh rules—Norway

REPORTS from the Norwegian Coastguard allege that Soviet vessels fishing in the disputed economic zone around Svalbard (Spitzbergen) are not respecting international regulations on mesh size.

The Coastguard says it has given written warnings to skippers of seven vessels boarded and inspected. The vessels will not be arrested. But if further small-mesh nets are found, there will be a protest to the USSR.

Early in August some 40 Soviet ships were taking large amounts of redfish and were not reporting catches.

# Australia to tighten coastal surveillance

AUSTRALIA is bringing in a major programme to improve surveillance and enforcement of the waters off her coast.

The upgrading, explained Minister for Transport Peter Nixon, followed consideration of a detailed report on civil coastal surveillance and enforcement capabilities.

"The changes reflect the government's concern over increased evidence of smuggling, unauthorised landings, quarantine breaches and other illegal activities along Australia's northern coast," said Mr. Nixon.

Extension of aerial surveillance

"They also take account of the need to enforce our fishery laws when the 200-mile Australian fishing zone (AFZ) is proclaimed."

"Our approach to the surveillance problem seeks to achieve maximum practical effectiveness at reasonable cost."

The new programme includes:

Introduction of daily air searches of northern coastal areas between Geraldton (Western Australia) and Cairns (Queensland) by civil aircraft on charter to the federal government.

Improvements in surveillance

and intelligence collection which would improve and extend existing voluntary reporting systems and encourage wider general public reporting.

Continuation of existing surveillance activities specifically directed to the detection of Indo-Chinese refugee boats.

The programme will involve additional expenditure of about \$3 million a year for chartering civil aircraft. As well as this, greater use will be made of existing Defence Force resources, the cost of which will be absorbed in the Defence budget.

## SQUID VENTURE OFF TASMANIA

JAPANESE and Australian interests are to co-operate in a squid fishing feasibility study of Tasmania. This is the first feasibility (experimental) fishing proposal approved under the guidelines for the pending extension of Australian fisheries jurisdiction out to 200 miles.

The study is expected to begin in September and could continue for up to two years, depending on a complete review of operations and results at the end of the first 12 months.

The venture was announced in a joint statement released last month by the Federal Minister for Primary Industry, Mr. Ian Sinclair, and the Tasmanian Minister for Primary Industry, Mr. Eric Barnard. They said they had approved the study after consultations between the Federal and Tasmanian governments.

Eight Japanese squid-jigging vessels will work off Tasmania to determine the possibility of developing a commercial fishery. The Japanese will be joined by two Australian vessels and the catches will be handled by a joint-venture company.

Tasmanian Fisheries Company Pty. Ltd. and the National Federation of Fisheries Co-operative Associations of Japan (Zengyo).

The squid jigging operation would not conflict with existing Australian fisheries; nor was it likely that the Australian industry could mount a similar operation in the foreseeable future, the Ministers said.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

doing no more than serve as

chartering agencies. Even if

leasing is permitted, the large

business houses will probably

be excluded.

The aim of the restriction

was to prevent importers

**How the USSR improves on nature...and spreads salmon from the Pacific to the Arctic**



Roe of calico or chum salmon is extracted for incubation in one of the Sakhalin hatcheries. This fish is being introduced to many rivers which previously did not support salmon populations.

# RUSSIAN RANCHING

As world interest grows in the development of salmon stocks through ocean ranching, scientists and fish farmers in the Soviet Union report further progress in spreading these valuable species far beyond their native waters.

During 1978, hatcheries on Sakhalin Island and the Kuriles in the Soviet Far East introduced 800 million young salmon into the Pacific. And two species of Pacific salmon have been introduced into the Arctic Ocean and the Caspian Sea.

GENNADY PISAREVSKY reports on progress.

## Billion fry is Far East target

THE FATE of the Pacific salmon is fortunately not so lamentable as that of many other oceanic species.

The population is growing. And Soviet fishery scientists have also succeeded in acclimatising Far East calico (*Oncorhynchus keta*) and humpback (*O. gorbuscha*) salmon in waters of the Arctic.

### Complex

This complex operation will take years to complete. It will be of importance to many other countries as well as to the USSR.

Having become Arctic dwellers, salmon not only spawn in the rivers of the Soviet north but have appeared in Norway and Sweden.

Far East salmon have also been acclimatised in the Caspian Sea.

Fry hatched from the eggs — about 25,000 per square metre of water — are fed into the sea in four or five months.

Initially, after hatching, they are placed in ponds where they are sheltered from predators, such as other fish. There they are fed on fresh roe of Alaska pollack.

succeeded in introducing calico salmon into rivers where this species did not spawn before. While the humpback or pink salmon tends to wander on occasions from its source river, the calico or chum salmon does not. It always returns to the river from where it set out to sea.

Realising this, the experts artificially breed fly in fishless rivers thus considerably enlarging the spawning areas of this valuable species.

Experiments have now started on the artificial breeding of chinook or king salmon, another important Pacific food fish.

### Marine farms

In addition to the ranching of salmon, aquaculture workers in the USSR report

SEE NEXT PAGE for reports on other work on rearing chinook salmon and for an account of Soviet tests in the transplanting of another important source of seafood from the Pacific to the Barents Sea.



TOP: Research workers at the Pechokalich Reserve mark a salmon to follow its movements.



LEFT: A research worker at the Institute of Marine Biology on Sakhalin investigates the migration and reproduction of salmon.

## THE LATEST NEWS ON FISHERIES

During the period 20-28 November The 7th International Fisheries Fair, Nor-Fishing '78 — will be held in Oslo. This is a trade fair of a high, international standard, where you will meet people from all over the world, with a strong interest in and knowledge of the fisheries industry. Nor-Fishing is considered to be one of the leading fisheries fairs in the world. Large and small firms present their products and news for the fisheries industry, and you will have a unique opportunity to find out about the very latest news in this field.

In conjunction with the exhibition we invite you to participate in the seminars to be held at The Sjølyst Centre.



### The International Nor-Fishing seminar: POST-HARVEST TECHNOLOGY AND INVESTMENT IN DEVELOPING FISHERIES

20th Nov.  
Film presentation: TARGETS FOR FISHERIES DEVELOPMENT  
Opening dinner: Norwegian evening. (Special registration is required. Attendance Nkr. 200,-).

21st Nov.  
POST-HARVEST TECHNOLOGY  
Speakers:  
F.A. Petersen, Project Coordinator for IIBC, Guyana Food Processing Ltd., Guyana.  
Dr. Wolfgang Krome, Chief, Fish Utilization and Marketing Services, FAO, Italy.  
Mrs. J. Maud Kordylas, Officer-in-Charge, Food Research Institute, Gurgaon, India.  
Gerd Lævold, Managing Director, FIDEKO (Fisheries Development Co. Ltd.), Norway.  
Ahmed Kamari, MARDI, Malaysia.

The first session will be devoted to the improvements of post-harvest technology in developing fisheries using modern methods of use of underexploited resources through more efficient handling and preservation systems, new products and processing methods and better market development and promotion. The question of reducing post-harvest losses and the use of trash fish and unconventional species will receive particular attention.

INVESTMENT NEEDS IN DEVELOPING FISHERIES  
Speakers  
Duckaco Lee, Chief, Agriculture

In November Oslo stands forth as a "city of light" as all of the Christmas displays begin at this time. For this reason you will have the chance to make pleasant shopping trips. In addition, we strongly recommend visits to the many restaurants which offer typical Norwegian Christmas specialties. We hope you will visit Oslo in November, and have some memorable days with people from all over the world sharing your interests.

Mond. 12-18. Weekd. 10-18. Saturd. 10-18. Sund. 13-18. Exhibition Pass and catalogue Nkr. 20,-.

To: Nor-Fishing '78, Norges Varemesse, P.O. Box 130 Skøyen, Oslo 2, Norway.

Please send me the exhibition catalogue free of charge  
 I want to attend the international seminar  
 I want to attend the national seminar  
 I want to attend the international seminar dinner

Name: ..... Title: .....

Company: ..... Address: .....

City: ..... Country: .....

Tel: ..... Telex: ..... Sign: .....

Please use block letters Date: .....

Proceedings and discussions at the international seminar will be in English. Seminar fee: Nkr. 1,200,- papers and luncheon included. Registrants will be charged 10% of the registration fee upon cancellation.

The second session will discuss the specific investments required by developing countries in post-harvest, processing, distribution, storage and marketing facilities and how the necessary transfer of technology in both hardware (capital items) and software (know-how) might best be achieved. Representatives from developing countries will have an opportunity to express their views on the needs of their fisheries in post-harvest technology.

22nd Nov.  
THE FUNDING OF INVESTMENT  
Speakers:  
Raj Guwassan, Director, Council of the Regional Banks of Norway, Norway.  
Zaki Azam, Project Manager, Fisheries and Livestock Projects Dept., Asian Development Bank, The Philippines.  
Julio Lune, Chief, Fishery Sector, Inter-American Development Bank, Washington D.C., USA.  
Arvid Fleppstad, Director, Eksport-Industri AS, Norway.

Ahmed Kamari, Economic Advisor, Abu Dhabi Fund for Arab Economic Development, Abu Dhabi, United Arab Emirates.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

Please return the filled-in coupon below. We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The national Nor-Fishing seminar (in Norwegian only).  
EXPANSION POSSIBILITIES IN BLUE WHITING FISHING  
24th Nov.  
Newer possibilities in blue whiting fishing  
Area of distribution and catch possibilities  
Fishing rights and economic importance  
Catch-technical conditions  
Gear and catch techniques  
Fish-finding equipment  
Products and markets  
Panel debate on catch techniques and requirements of equipment.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

We will send you the invoice with confirmation of your participation. Seminar programme subject to alteration.

The participation fee for the national seminar is Nkr. 200,- papers and luncheon included.

**Another Russian improvement on nature... plus one from South America**



Now for the Barents Sea. A fisherman in the Soviet Far East with two Kamchatka or king crabs.

# KINGS GO FORTH

## Taking crabs into the Barents Sea

**RUSSIAN** fishing experts believe that it is economically feasible to set up a crab fishery in the Barents Sea by transplanting the big Pacific Kamchatka or king crab.

Reporting on the project, Yury Orlov writes that the first results are encouraging. The increasing number of crabs seen is evidence that new generations have already started to reproduce in the new environment.

Information is being collected on all catches of

Kamchatka crab in order to determine their life cycle and to work out measures for reproducing and rationally exploiting them.

Unusually large crabs of Far East origin are being caught

with increasing frequency off the northern coast of Scandinavia.

Between 1961 and 1969, about 10,000 Kamchatka crabs from one to three years old and 3,000 larger crabs six to 16 years old were taken to the Barents Sea in special rail wagons or by air, and released.

Earlier experiments in acclimatisation had failed, but this time very careful preparations had been made by Glavybyod, the specialist organisation within the Ministry of Fisheries responsible for acclimatisation work.

### Network

Glavybyod runs a network of research stations and its activities have been of benefit to other countries as well as the USSR. Mullet, for example, which has been transplanted from the Black to the Caspian Sea is also fished by the Iranians. Humpback salmon acclimatised in the Barents Sea is now being taken by Norwegians.

Kamchatka or king crabs (*Paralithodes camtschaticus*)

The eggs were carefully planted in artificial nests in the headwaters of the Rio Jaquiri in Brazil's southernmost state of Rio Grande do Sul. At the sites selected the water and stream bed conditions were similar to those of the American river. Observation of control samples planted in Vibert boxes indicated a hatching survival of 70 per cent.

Four years later, according to a letter from Mr. Ripley, reports from Salto, Uruguay, said that a large number of fish of a species unknown to the local residents were seen repeatedly leaping at the impassable falls on the Rio Uruguay.

### Branch

The Rio Uruguay is a major branch of the Rio de la Plata, the estuary on which both Buenos Aires and Montevideo are located. The headwaters of the Rio dos Pelotas, a tributary of the Rio Uruguay, rises in the same highland marsh from which flow the tributaries of the Rio Jaquiri in which the chinook (king) salmon eggs from California were planted.

If the fish sighted at Salto in Uruguay in 1962 were indeed the salmon that had been planted in Brazil in 1958, Mr. Ripley's experiment may have provided the first example, to date, of the successful return of salmon from the sea to the coast of South America.

belong to the stone crab family. They are found widely over the North Pacific from the Kamchatka Peninsula and the Sea of Okhotsk in the Soviet Far East round to Alaska. The main catcher is the United States, with 48,000 tons of a 69,000-ton total in 1976. The Russian catch that year was just under 20,000 tons.

Fears of overfishing the natural stocks have led to stringent controls over king crab fishing off Alaska. The Russians have also controlled their fishing but are now also turning to positive management through stock enhancement and transfer.

### New areas

It has been found that big Kamchatka crabs can cover considerable distances and spread quickly in new areas.

Barents Sea waters off northern Norway and Russia already contain stone crab. But these are small and less abundant than the Kamchatka.

Success in the Barents Sea operation is seen as an indication that it might be possible to carry out acclimatisation in other areas. Promising places suggested by Soviet experts include the coasts of Norway, Holland, Iceland and the British Isles.

Other potential areas could be around Newfoundland, southern South America, the south-west coast of Africa, the south coast of Australia, and New Zealand.

Assuming that this may be the case, it is interesting to try to reconstruct the probable ocean migration of these fish, for it provides the basis for a possible cause for them straying into the La Plata system rather than returning to the Brazilian river in which they had been planted.

### Nursery

Leaving the Rio Jaquiri for the sea, the migrant chinooks would have entered the brackish Lagoa dos Patos which should have proved to be an excellent nursery if they continued on toward the sea through the pass at Rio Grande at a time when winds were pushing the freshwater plume of the La Plata northward along the coast of southern Brazil, they would have entered this plume before encountering full-strength salt water. Therefore they would have had its characteristics imprinted upon their memories.

### Similar

The eggs were carefully planted in artificial nests in the headwaters of the Rio Jaquiri in Brazil's southernmost state of Rio Grande do Sul. At the sites selected the water and stream bed conditions were similar to those of the American river. Observation of control samples planted in Vibert boxes indicated a hatching survival of 70 per cent.

Returning northward 3+ years later, they would have again encountered the large plume of fresh water from the La Plata. Turning left into the estuary, they would have encountered Rio Uruguay water along the north shore. Since it would contain elements very similar to those of the Jaquiri system, it would not seem improbable that they would have been stimulated to attempt to ascend it. Hence the sightings at the falls at Salto.

The interpretation of the apparent (but physically unconfirmed) results of the 1958 chinook salmon transplanting experiment in Brazil suggests that the cool waters over the shelf on the Atlantic side of southern South America may be able to provide ocean feeding areas for salmon, sufficiently well bounded by warm-water barriers to the north and east, to prevent large-scale straying into the open ocean.

It should be possible to develop release sites appropriate for salmon ranching along the entire stretch of the South American coast from 50°S on the Pacific side, around Cape Horn to the La Plata estuary on the Atlantic side.

**Brazil's forgotten salmon transplant could pay off**



Good news for the purse seiner fleet:

## DISCHARGE YOUR CATCH UNDER YOUR OWN POWER.

### Your own hold-mounted discharging pump.

This new patented discharging pump from Myren Verksted, Oslo, Norway, has successfully completed long-term practical trials.

The pump is extremely compact and takes little space. It is installed in a central position in the hold, with pipes from the individual compartments. Driven by a hydraulic motor, the pump pumps the fish direct to the reception point on the quay - without the addition of water.

### Big reduction of discharging time.

The maximum capacity of the pump is 180 tons per hour. In practice this means that discharging is effected far quicker than when using a grab. Considerable savings of time may be expected, especially for fairly large vessels.

### Less dependence.

With its own discharging pump onboard, the vessel is not dependent upon shore manpower and installations. All that is needed is a manned receiving station - the vessel discharges its own catch at the touch of a button.

This means reduced waiting time, and consequently earlier return to the fishing grounds. Also, profitability is increased because discharging costs are reduced.

MYREN VERKSTED AS

### Non-polluting

One major disadvantage of conventional discharging with grabs and bucket elevators is harbour pollution. The new Myren discharging pump cannot cause pollution of harbour waters and leaves quays clean and spill-free. The crew's working environment is improved - during discharging operations not a fish is to be seen on deck. all you see is the level of fish in the hold continuously sinking.

Also, pumping without the addition of water eliminates loss of raw material and flow of effluent to the harbour. In addition, cleaning of the hold after discharging is greatly simplified.

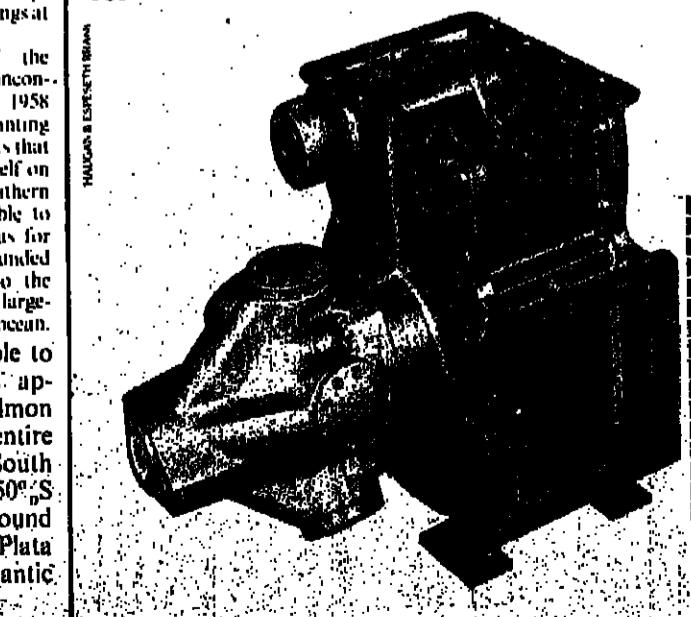
### A fully tested system.

Myren's new pumping system for the discharging of purse seiners, which is based on extensive research and development work, has undergone long-term practical tests. The system has completely fulfilled every expectation.

### Economics.

The Myren discharging pump is a sound investment. Briefly summarized, the economic advantages are: 1) Shorter effective discharging time. 2) Shorter waiting time at quay. 3) No loss of fish.

## DISCHARGING PUMP BRP



Please send me further information of the Myren discharging pump.

Name .....  
Company .....  
Address .....  
Position in company .....

PO Box 4200  
Tønsberg, Oslo 4  
Tel. (03) 38 50 00 Telex 1  
Cable: Myren Oslo

## Half measures make whole disasters.

Having one searchlight is like being half blind, and the half you don't see could be a whole disaster. It is safer to have two searchlights so that dangerous blind spots are removed.

When a man goes overboard, he can't choose which side, and with only one searchlight, it could be a choice of life or death.

Take a look at the Francis Searchlight range, 7", 9", 11", 12", 15", 22", 28" cabin, deck, remote control. With tungsten halogen or compact source mercury iodide light sources. All made to the highest standards tested and approved to the British Defence Standard 05.21 because we aim to keep our customers safe. When the choice is between life and death, doesn't it make sense to take full safety measures?

Contact Francis Searchlights Lucas Marine Ltd Union Street Bolton Lancashire BL2 2HJ  
Telephone: Bolton (0204) 27196 Telex 63486

**Lucas Marine**

FRANCIS SEARCHLIGHTS LTD.  
A carrier boat of the Krasny Oktjabr Fishing Co-operative on the Kamchatka Peninsula returns with a crab harvest from boats working in the Sea of Okhotsk.

## Catching on in the Baltic...

THE Baltic Sea is another area where salmon ranching has considerable possibilities. And there is no suggestion, yet, that there should be any species other than the native Atlantic salmon (*Salmo salar*).

As in the North Pacific, however, stocks are not likely to be restored without the help of hatcheries. Already, more than a third of the salmon caught in the Baltic are hatchery reared.

Here, a fisherman working in a co-operative in the Latvian SSR shows part of his catch.

## Marine buyers form own association

A NEW international association for marine purchasing managers has been formed in the United Kingdom.

To be known as The International Marine Purchasing Association (IMPA), it developed through an article in the journal *Marine Stores International*, which asked why marine buyers did not have their own professional body.

There was a quick response with offers of support from a number of countries.

Membership (costing £10 per year) is for managers and their immediate deputies in charge of marine purchasing in vessel owning or operating companies.

Further information from Vivian Raven, hon. secretary, IMPA, Queensway House, 2 Queensway, Redhill, Surrey, England.



## In 1897 a new Ice Age began (Sabroe was born in 1897)

At first in Denmark, but in the following years the "Cold" moved slowly, but surely south reaching all parts of Europe, and finally spreading to all parts of the world.

And this "Cold" is here to stay!

The new Ice Age began when SABROE became interested in refrigeration techniques. Naturally, since the Company was founded to supply machinery for the dairy industry. However, we were well and truly caught by the "Cold", and compressor no. 2 - also from 1897 - now has its deserved rest decorating our main entrance.

In 1902 we supplied our first marine refrigeration plant, - and from then on things really got moving. We developed and produced to the home market and export, for industrial and marine refrigeration.

Right from the start we refused to compete on price alone. Thus our prices correspond to our policy for high quality. Your benefit is low operating costs for years to come. By the way, we can supply spare parts to machines produced during the last 25 years - a necessary service when products are so durable.

We are convinced that our policy for high quality is the main reason for our world-wide reputation today. We have subsidiary companies in Japan, Sweden, Denmark, Germany, and Brazil. We have qualified agents and distributors in most parts of the world, and our compressors are produced on licence in Brazil, India, Japan, Spain.

Ask SABROE, when refrigeration is required. We have the answer.

**Keep cool with...**

**SABROE**

P.O.BOX 1810 - DK 8270 Helsingør-Denmark  
Phone (06) 27 12 68 - TELEX 64361

## TRAINING TOPICS

A "new dimension in maritime training" — that's the new 14-metre long vessel developed jointly by Redifon and Watercraft Ltd., in the UK. She bridges the gap between shore-based simulation and fully operational ships.



## A simulator that goes to sea

TRAINING fishermen in navigation and the use of electronic fish finding instruments is one of the uses seen for a new type of small vessel jointly developed by two British companies. Introduced last month in London, the new boat aroused considerable interest among those who travelled on her demonstration trips on the River Thames.

Described by her developers as a "new dimension in maritime training," the 14-metre long vessel is a combined venture by Redifon Simulation Ltd. and the builder Watercraft Ltd.

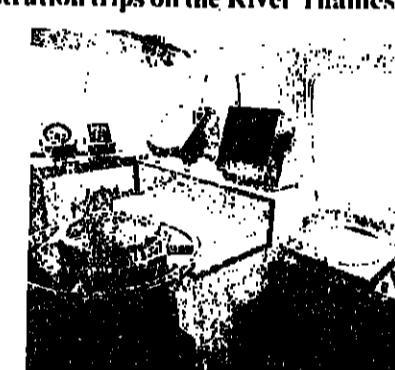
She is intended to bridge the gap between the more traditional shore-based training establishments and that of fully operational ships.

Although the prototype is directed mainly to the needs of merchant navy and naval training establishments, the two firms have made it sufficiently versatile to be built and equipped as an aid to the training of fishermen in a simulation of a modern, sophisticated fishing craft.

A member of the Redifusion group

of companies, Redifon is a leading firm in the manufacture of marine training equipment and simulators.

Over a period of 40 years, Watercraft has built more than 12,000



Inside the vessel's wheelhouse. This is the instructor's position.

small vessels, mainly workboats for many different duties.

The training vessel is fitted out as closely as possible to simulate a larger ship.

Her design is based on a 14-metre heavy-duty workboat hull which has a large carrying capacity and good sea-keeping qualities.

The standard vessel is offered with twin or single General Motors diesel engines giving a speed of 12 knots.

In the demonstration vessel, equipment was supplied mainly by Decca. It includes RMT 1216C radar with two slave displays, Sirius master gyro compass with three repeaters, Sailor radio telephones, Decca Navigator receiver, and Simrad EN echo sounder and NE doppler log.

### Plugged-in

Other electronic equipment can be fitted and plugged in, including Omega, Loran C or satellite navigator.

For fishing training, this equipment can include fish finding echo sounders and sonar. The boat can also be equipped for oceanographic studies or, presumably, for training in them.

For these duties, simulated inputs can be superimposed on live equipments.

Depending on the configuration, up to 12 trainees can be given practical instruction at any one time on a rotation arrangement.



## EXPORT CURBS LIFTED

HIGH PRICES being paid for certain kinds of fish have persuaded the South Korean government to relax export restrictions.

These controls stabilise domestic supplies from the country's growing fishing industry by preventing sales abroad of species needed on local grounds.

The Office of Fisheries has therefore lifted controls on ten kinds of fish exports, including tuna, Alaska pollack, and cuttlefish.

other species were under restriction.

But prices abroad have been well above those offered locally, and the industry has been going through hard times over the past year as 200-mile limits have taken away important grounds.

Thirteen types of fish and shellfish were listed as prohibited exports; nine

## NON-CORROSIVE MARINE CONTROLS LAST LONGER

Next time you throw away a zinc or chrome part, think about Kobelt's non-corrosive brass, bronze and stainless steel marine controls which can outlast zinc/aluminum controls 3 or 4 to one. That represents a saving in downtime.

And since Kobelt's patented controls are very competitively priced, and come with a five year warranty\*, it makes good business sense to invest in our longer lasting products.

Kobelt controls are built to last, and are made in all sizes for any type of vessel.

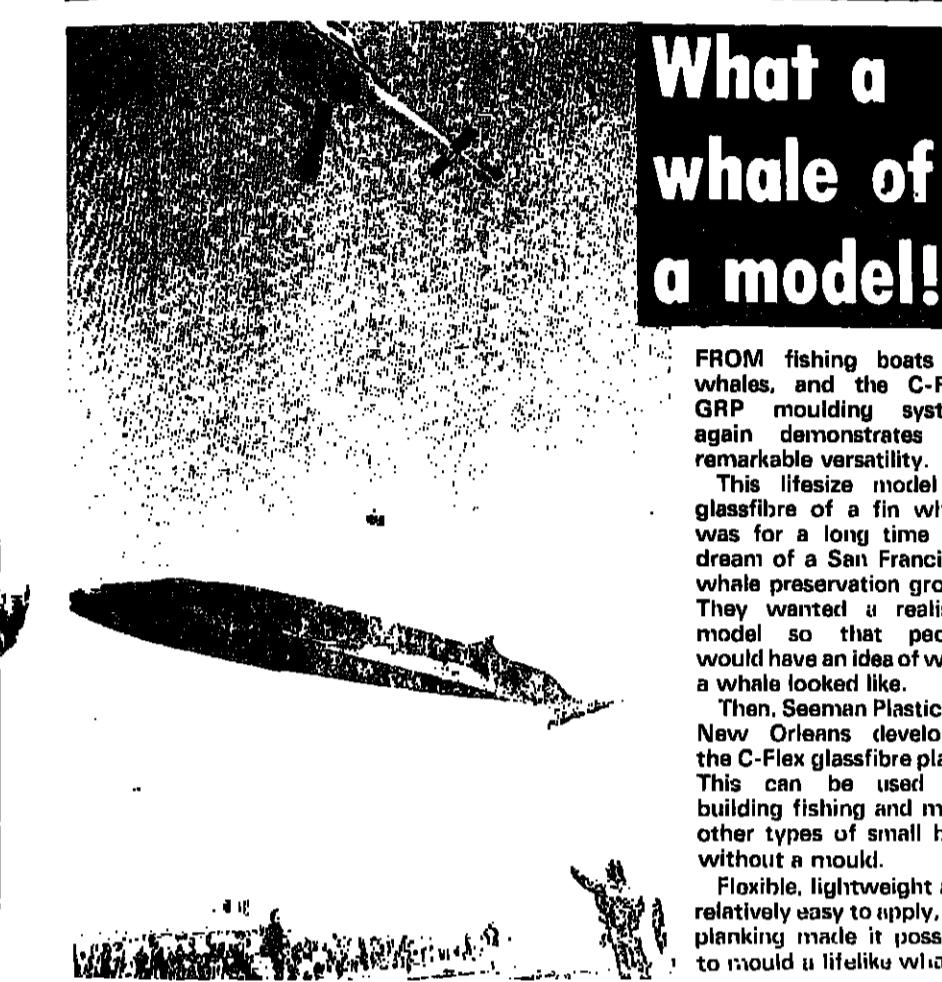
- Mechanical and pneumatic clutch and throttle controls
- Single lever control units
- Load sharing units
- CP control units
- Automatic load controls

\* Parts are fully interchangeable throughout the world.

All metal parts carry a five year warranty. Other parts have a two year warranty.

Kobelt — for responsive, long lasting marine controls

J. Kobelt Manufacturing Company Limited, 235 E. 5th Avenue, Vancouver, B.C. Canada V5T 1H2. Tel. (604) 679-6323. Cable KOBSTROL



## What a whale of a model!

FROM fishing boats to whales, and the C-Flex GRP moulding system again demonstrates its remarkable versatility.

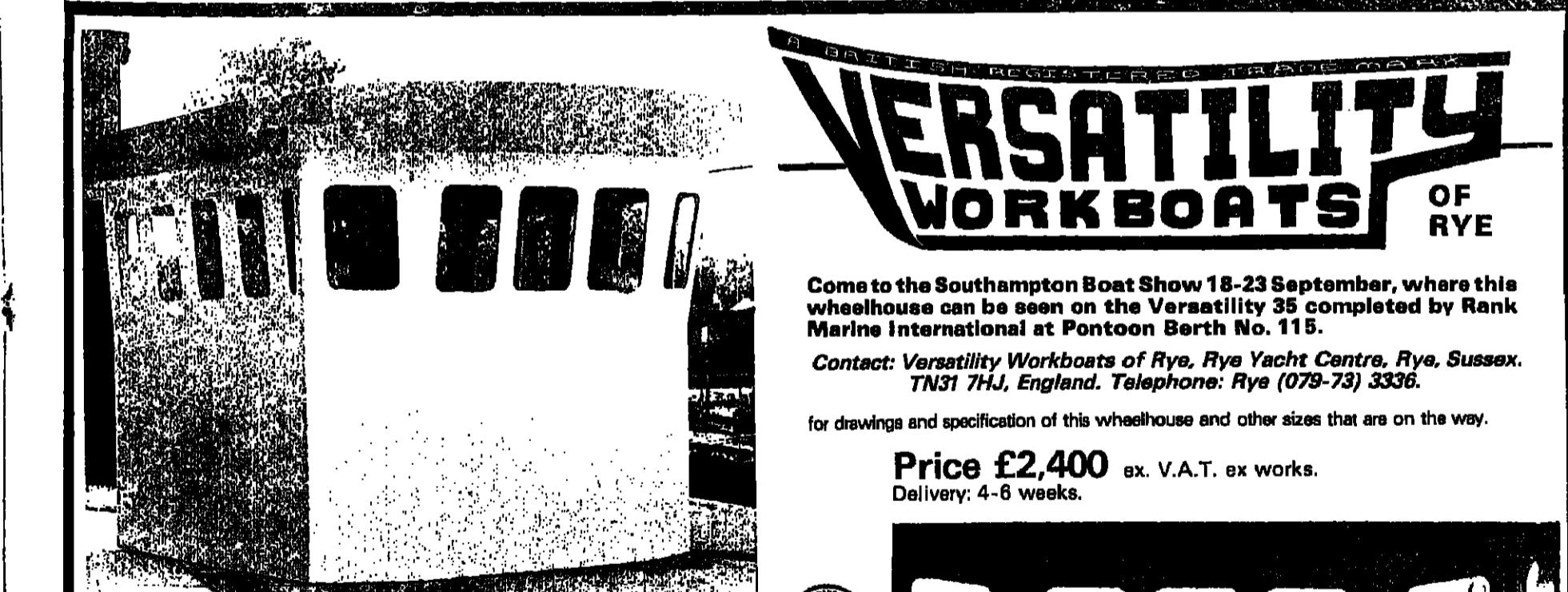
This lifesize model in glassfibre of a fin whale was for a long time the dream of a San Francisco whale preservation group. They wanted a realistic model so that people would have an idea of what a whale looked like.

Then, Seaman Plastics of New Orleans developed the C-Flex glassfibre plank. This can be used for building fishing and many other types of small boat without a mould.

Flexible, lightweight and relatively easy to apply, the planking made it possible to mould a lifelike whale.



KOBELT



## VERSATILITY WORKBOATS OF RYE

Come to the Southampton Boat Show 18-23 September, where this wheelhouse can be seen on the Versatility 35 completed by Rank Marine International at Pontoon Berth No. 115.

Contact: Versatility Workboats of Rye, Rye Yacht Centre, Rye, Sussex, TN31 7HJ, England. Telephone: Rye (079-73) 3336.

for drawings and specification of this wheelhouse and other sizes that are on the way.

Price £2,400 ex. V.A.T. ex works.

Delivery: 4-6 weeks.



©

VERSATILITY

WORKBOATS

OF

RYE

©

VERSATILITY

WORKBOATS

# NOW FISH COSTS MORE THAN STEAK

## OECD reveals a dramatic turnaround

IN THE United States, a pound of haddock fillet is dearer than a pound of sirloin steak, and canned sardines cost twice as much as the

same amount of whole chicken.

Last year, in the developed countries, the average price of fish in the shops jumped by

more than any other protein food. The rise in the United States was 11 per cent — well above that for meat, poultry, fruit and vegetables.

Reviewing the fishing industries of its 21 member countries, the Paris-based Organisation for Economic Co-operation and Development (OECD) accounted for around 25 million tons of the total world catch in 1977.

The Organisation's eleventh annual Review of Fisheries — recently published in Paris — shows how this was achieved.

It starts with a general survey and statistics. But the bulk of the 250-page book comprises individual reports on the 21 member countries.

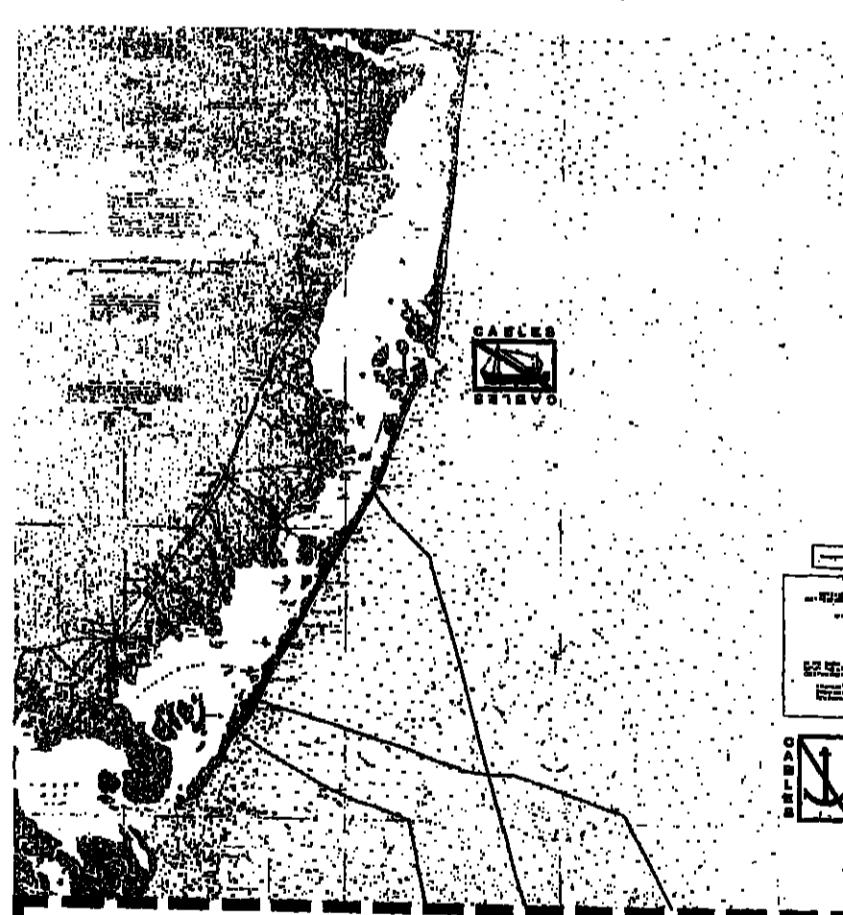
kilos, from the record 5.9 kilos of 1976.

The main fall was in consumption of fresh and frozen fish products, mainly from other countries.



Processing mackerel aboard a British factory ship off the English south-west coast. The OECD sees this as a new trend in fisheries arising out of the extension of limits.

## Please don't cut the cable.



**Attention:** Does your business take you out on the ocean? Are you involved with ocean dredgers or trawlers, offshore drilling and pipelines, or any other ocean-related work? If so, you need to know where underwater telephone cables are located. In this way, you'll protect your equipment, and we'll protect our cables. For charts showing their exact locations, mail this coupon to: Manager—Overseas Facilities Maintenance, AT&T Long Lines, Room 4A-224, Bedminster, New Jersey 07921.

410 Gulf of Mexico and Caribbean Sea	Name _____
12200 Cape May to Cape Hatteras	Address _____
12300 Approaches to New York	City _____
13218 Little Egg Inlet to Herford Inlet	State _____ Zip _____
12323 Sea Girl to Little Egg Inlet	Phone Number _____
13003 Cape Sable to Cape Hatteras	Vessel _____
13218 Martha's Vineyard to Block Island	Type of Business _____
14007 Cape Race to Cape Sable	
14017 Grand Banks of Newfoundland	
14023 Island of Newfoundland	
17400 Dixon Entrance to Chatham Strait	
18480 Approaches to Strait of Juan De Fuca	
18620 Point Anane to Trinidad Head	
18640 San Francisco to Point Arena	
18700 Point Conception to Point Sur	

Bell System

FNI-4

## Limits begin to bite

APART from being hit by soaring costs and prices, the fisheries of the OECD also felt the full impact of the spread of limits out to 200 miles.

They faced the problem of reduced landings from overfished areas and the changes in species, methods and vessels arising from the new coastal state regimes.

The obvious change reflected in the OECD's eleventh Review of Fisheries has been the cutback in distant water fishing as the new economic zones begin to bite.

Where foreign fishing has not already been brought almost to a standstill, larger shares of catches have been going to fishermen of the coastal states and less to foreign fleets.

Looking at joint programmes and ventures, the OECD review finds the

main activity centred on tropical and southern areas, with the private sector providing the prime movers in the more industrialised countries.

Although not among the joint ventures, the delivery of mussel-caught fish by local vessels to foreign factory ships or carriers is seen as an interesting new development arising from extensions of limits.

The OECD mentions the supply of fish to Russian and other Eastern European mother ships and factory trawlers as an example of this activity.

There were signs that this type of operation could become quite common, giving the approval of coastal governments and, of course, ample stocks of the required species.

Overtures to obtain similar concessions were reported from the United States, Canada, New Zealand and elsewhere.

Another consequence of wider limits is the growth in coastal fleets, mainly in the 50 to 100 gross ton category. This is seen to reflect realisation of the potential of coastal fisheries by professionals and non-professionals, "frequently encouraged by financial aid provided by governments anxious to make the most of their extended fisheries."

One report from member countries quotes 708 vessels being built for United States owners in 1977, compared with 556 the year before.

Only nine of the boats in 1977 were more than 100ft. long. Yards were

expected to work to capacity until 1980 on the orders already placed.

The overall impression, notes the review, is that transformation to a new regime for marine fisheries, which was going relatively smoothly in 1976, became more troublesome in 1977.

## engel nets worldwide



Pelagic ENGEL-NET on a 400hp stem trawler in Australia.

Midwater trawls, Pair trawls, Bottom trawls, both pair and single boat. High opening bottom trawls (Engel balloon trawls)

All nets can be supplied ready to fish with floats, weights, bridles, trawl doors and with bobbins for hard ground.

HERMANN ENGEL & CO.  
NET MANUFACTURE LTD.  
0285 BREMERHAVEN W GERMANY  
P.O. Box 308 Telex 238821 Phone 72059

## DRIFTER FINDS A BERTH



FOR ALL the herring that is now available around the British Isles, the Yarmouth steam drifter Lydia Eva might as well have been trying her luck on the River Thames in London.

But fishing days are long past for this 48-year-old survivor of the times when herring abounded off the East Anglian coast.

The Lydia Eva was built at Kings Lynn in 1930. She is 96ft. long and driven by a reciprocating steam engine.

She worked in the North Sea until the outbreak of World War II.

She avoided the fate of most of the other drifters, which went like the distant water side trawlers of

today, to breakwaters.

During the past seven years, she has been laid up in the port of Great Yarmouth. There, early in August, she took aboard four tons of ballast steamed south to the mouth of the Thames then up the river to Katherine's Dock near Tower Bridge.

She will have a permanent berth there, as part of a floating museum planned by the Maritime Trust.

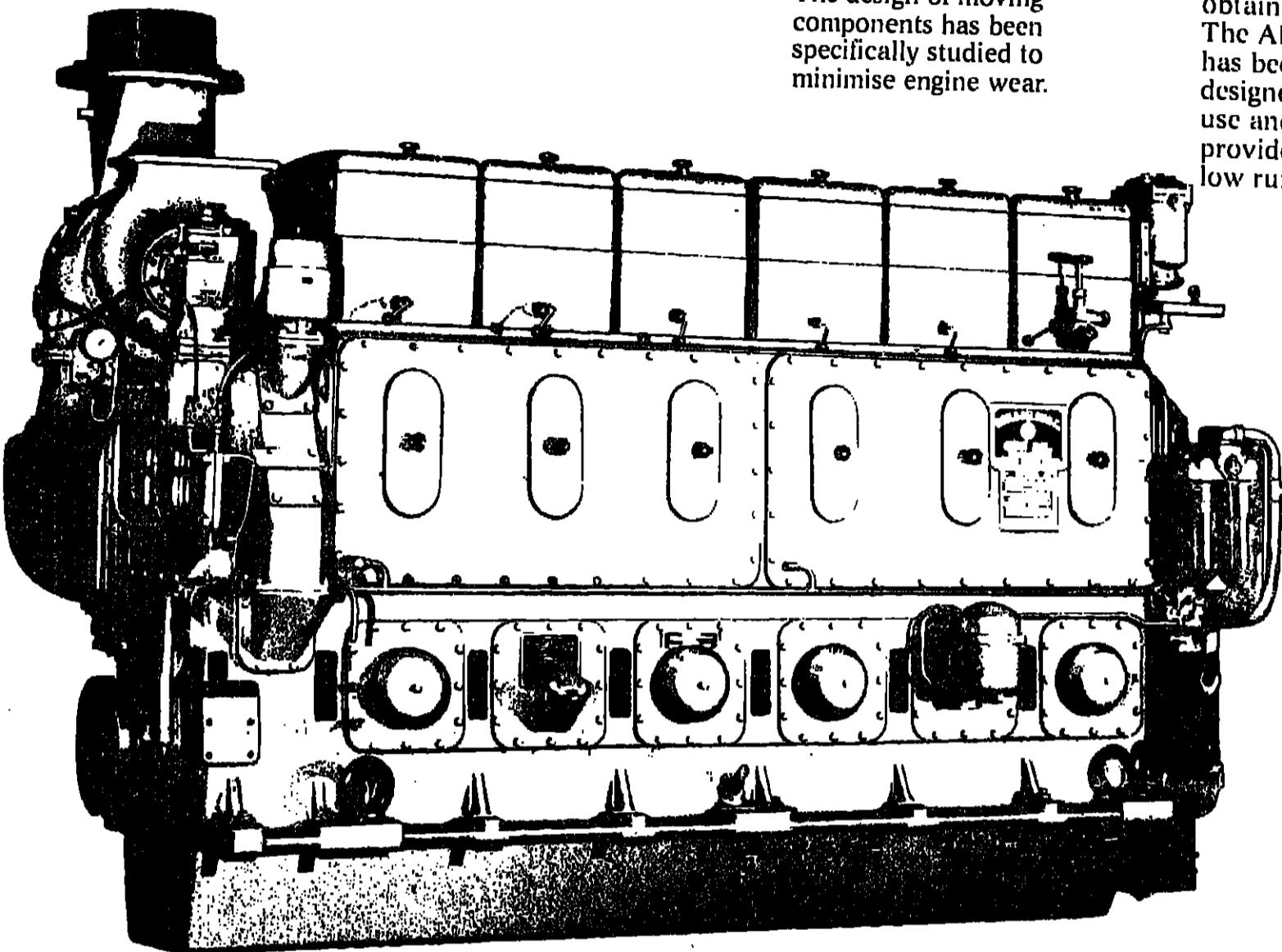
Well-preserved, clean and neat,

she may not appear exactly as she did in her more arduous fishing days, but her engine will remain in her, in working order. And she may from time to time, be taken from her berth to sail again.

London welcomes a sturdy boat from the past

# There's more to them than meets the eye.

The 6MDX engine



**Very low lube oil consumption**

We claim to be the lowest of any engine within our range.

**Good fuel consumption**

Average 162 grammes per horsepower/hour with all accessories fitted.

**Very low noise levels**

The material mass correctly positioned absorbs a considerable amount of noise.

**A dry sump**

Ensures correct lubrication of all working parts which results in a longer interval between services and less engine wear.

## ABC marine propulsion engines.

Some things about ABC engines you can see at a glance.

The superb design, for instance, for easy maintenance and servicing. And the precision engineering, which makes for ABC's unrivalled reliability.

But there's a lot more to them than meets the eye. Things like their incredible economy, remarkable quietness of operation, excellent torque characteristics—all this means superb value for money.

In addition there is a comprehensive after-sales service, with trained technicians available for routine servicing or in the unlikely event of a breakdown.

**Very low engine wear characteristics**

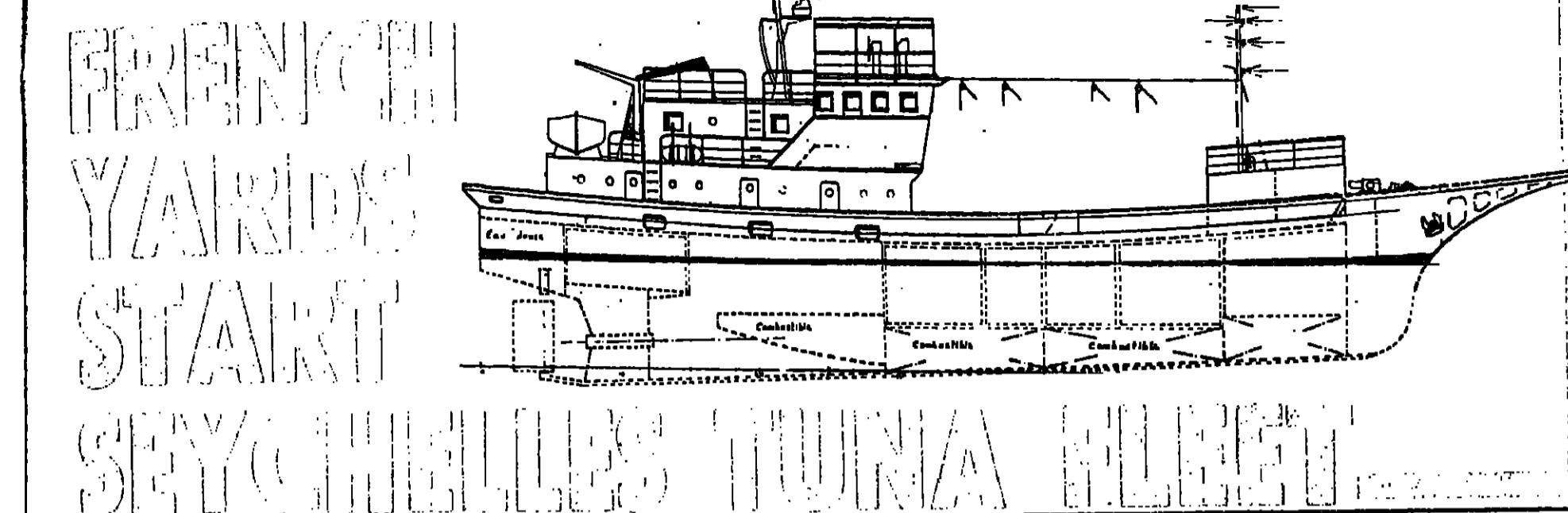
The design of moving components has been specifically studied to minimise engine wear.

**Medium speed**

Maximum power is obtained at 750 rpm. The ABC MDX engine has been specifically designed for marine use and therefore will provide reliability and low running costs.

## BOATS & BUILDERS

### Four pole and line fishers for island aid project



FRENCH YARDS are to build four 38-metre long tuna pole and line fishing vessels as part of a big international aid project in the Seychelles.

The ships will form the hub of an island fleet that will eventually produce 15,000 tons of frozen fish a year — mostly skipjack — for shore-based canneries.

The four new vessels are the French contribution to the project which involves the establishment of a £6.5 million fishing operation at Victoria, capital of the Seychelles (see *FNI*, July 1978).

Britain's Ministry of Overseas Development is also participating to the tune of £1.4 million for the construction of shore facilities.

The yards involved in the order — with two ships each — are Ateliers et Chantiers de la Manche (the old SICCA yard) at Saint-Malo and Chantiers Normands-Reunis at Courcelles.

Four of the tanks are also to be used for live bait and these will have water renewal installations.

Accommodation is provided for a crew of 20 below main deck level.

There are quarters for three men, along with officers' mess, galley and crew's wash house, on the main deck, and the skipper and chief engineer have cabins on the upper deck.

Fishing stations are located on the port side, aft. Racks for the rods, fish ponds and a watering ramp are provided.

Radio equipment includes a 400-watt transmitter receiver, watch-keeping receiver and vhf transmitter-receiver.

There is a 32-mile radar, satellite navigation receiver, two ultrasonic depth indicators, gyro compass and autopilot.

Steering is electro-hydraulic with standby hand pump and the rudder is of the plain balanced type.

#### WINCH ORDER

THE Scottish engineering firm, Northern Tool and Gear Co has secured an export order for a combined seine and trawl which for Port of Spain, Trinidad. The winch, suitable for any fishing boat of 50 to 90 ft., is similar to the two recently sold by the firm to Indonesia.

#### Live bait

Freezing plant will comprise two compressors (97,000 lbf at -10 to +25 deg. C); two sea water pumps and two condensers.

WALCKER & CO. KG · D-2854 LOXSTEDT

**WACO** Warp Tension Meters

TELEX 238894 · PHONE (04744) 2031

To improve our service to customers, we are pleased to announce the formation of Euronete (U.K.) Ltd., established at Fleetwood, England, to enable us to offer better sales and service to our clients throughout Northern Europe.

Euronete, the world name for precision netting.

Euronete  
Produtor de Redes de Pesca Ltda.  
Caixa Postal 28,  
Mata-Douro,  
Portugal

Tel: 9480745  
Telex: 22240P  
Tel: Fleetwood 2341  
(0302 17)  
Telex: 67800 Euronete  
Fleetwood



Anglo Belgian Company  
Wiedauwkaai 43, B-9000 GENT Belgium  
Tel: (091) 23 45 41. Telex: 11298



**BOATS & BUILDERS****SCOTS FAMILY'S FOURTH**

**Buchans return to Norway for latest £900,000 purser**



SKIPPER John Buchan of Peterhead, Scotland, is now in command of his new 111 ft. (33.84 metre) long purse seiner *Lunar Bow* (pictured left). The ship cost about £900,000 and was built in Norway by Sigmund Iversen of Flekkefjord.

The fourth purser to be built by the Iversen yard for the Buchan family, she replaces an earlier boat of the same name.

She has a transom stern, raked stem, bulbous bow and is fitted with a full length shelter deck.

Construction is mainly of steel but the wheelhouse and RSW tank hatches are aluminium.

She has a carrying capacity for some 300 tons of fish in her six RSW tanks.

The vessel incorporates all the latest ideas in the layout and equipment of Scottish purse seiners. She can also work as a single or pair trawler.

Apart from the Bjørshol Triplex net winch, all hydraulically powered gear handling machinery is by Karmøy Mek. Verksted.

Rather than the more usual siting on the shelter deck, the 26-ton combination purse seine and trawl winch is housed in a more sheltered position on the main deck, on the port side forward of the tank hatch trunking. The winch has two drums for purse seining and two for trawling.

**Net winch**

The Triplex 603 360 20 net winch is on the starboard side of the deckhouse together with its control console. It is used with either of two transport rollers, each of which directs the net into the appropriate stowage bin.

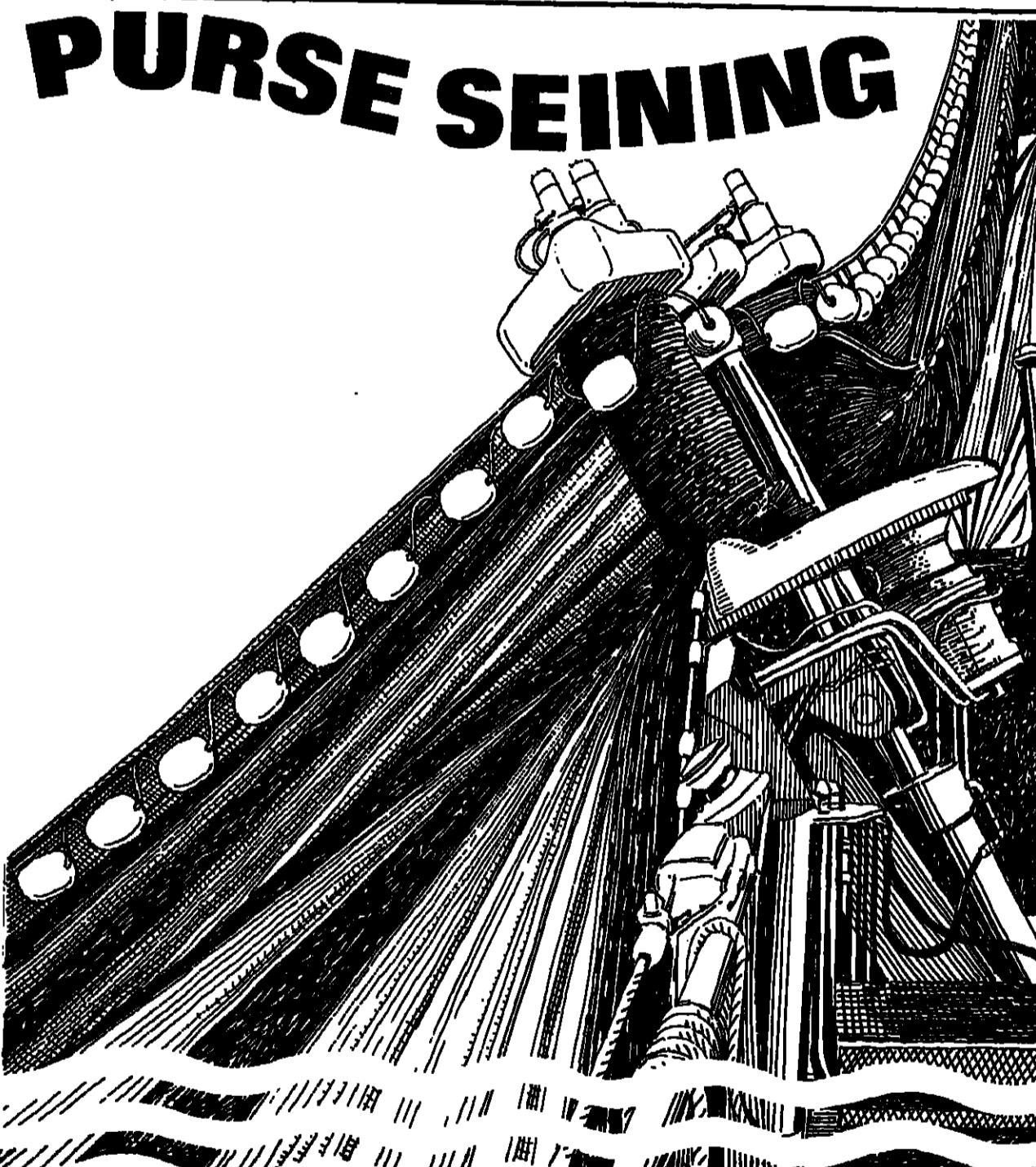
The mackerel net is from Norsenet and the net for herrings and sprats from Saganet.

For mid-water trawling, a Karmøy net drum is sited at the port side of the deck house and a trawl gantry spans the quarters.

The *Lunar Bow* is the first vessel in the Scottish fleet to be powered by a Caterpillar diesel engine of more than 1,000 hp.

This is a 16-cylinder Cat. D399 (supplied by Caledonian Tractor & Equipment Company) turbocharged and aftercooled and rated at 1,125 hp at 1,225 rpm. It turns a controllable pitch propeller through a Pay and Brinck PB3.9 to 1 reduction gearbox.

Hydraulic pumps which drive the side thrusters and

**PURSE SEINING**

**WITH THE  
TRIPLEX  
NET WINCH**

For TUNA, HERRING and MACKEREL

**P. BJØRSHOL MEK. VERKSTED**  
6560 LANGØYNESET, KRISTIANSUND, NORWAY  
TELEX 55432 PBMV N TELEPHONE (073) 11700

The TRIPLEX hydraulically operated seine winch hauls with all three rollers simultaneously.  
100% effective pull on the net and cork line.  
Wear on net reduced.

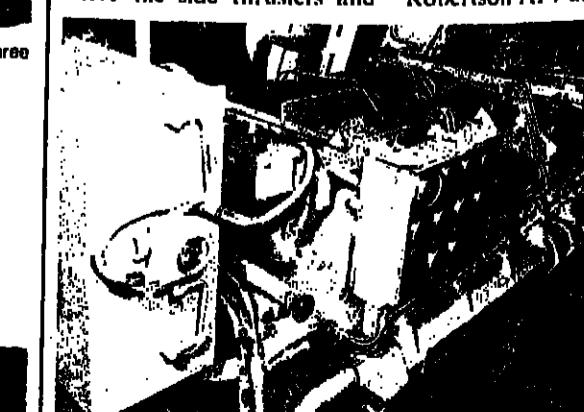
Roller fitted with replaceable rubber coated cylinders.

TRIPLEX NET WINCH delivered now in three sizes:

Type 380/226 with theoretical net pull 1.6 and 3 tons.

Type 604/300 with theoretical net pull 4 and 6.5 tons.

Type 603/360 with theoretical net pull 16 tons.



'Lunar Bow's' Caterpillar D 399 engine. The vessel is the first in Scotland to be fitted with a Cat propulsion unit of more than 1,000 hp.

**TWO DAYS TO FILL THE HOLD**

ONE of the latest additions to Scotland's seine net fleet is the 56 ft. (17 metre) long wooden-hulled *Endeavour II* for Skipper Alex Forsyth in association with the Don Fishing Co. (Aberdeen) Ltd.

Designed by the Napier Company (Arbroath), the boat is typical of the sturdy small seiner and bobbin trawlers from the Maeduff Boat

forward end of the fishroom.

The fishroom has a capacity for 260 boxes, and in one of his first trips in the new boat Skipper Forsyth filled it in two days.

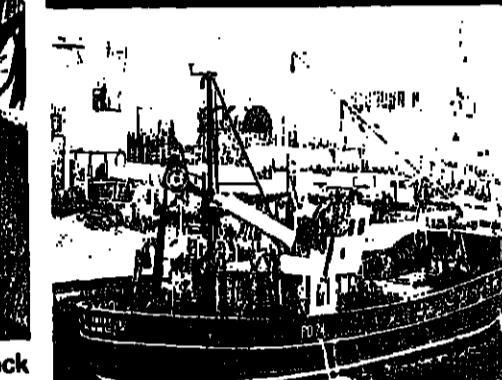
The Volvo Penta TAMD 120 A six-cylinder propulsion engine has a continuous rating of 300 hp at 1,800 rpm. It turns a Bruntons Caledonian fixed pitch propeller through a Twin

Disc 4.5 to 1 ratio gearbox.

A takeoff shaft at its forward end transmits power to a Dowty variable delivery hydraulic pump driving the Mastra winch.

Fish finding equipment includes an Elac Echograph with bottom lock. The boat also carries Sailor radio telephones, Furuno FRS24 radar and a Koden multi-style sounder.

A good start for the seiner *Endeavour II*

**COOLER 'AMETHYST' COMES BACK HOME**

THE 85 ft. (25.9 metre) steel-hulled vessel *Amethyst* (left) returned to her home port of Peterhead, Scotland, recently, after having refrigerated sea water tanks fitted in Norway by Haakonsen Mek. Verksted, Skudeneshavn.

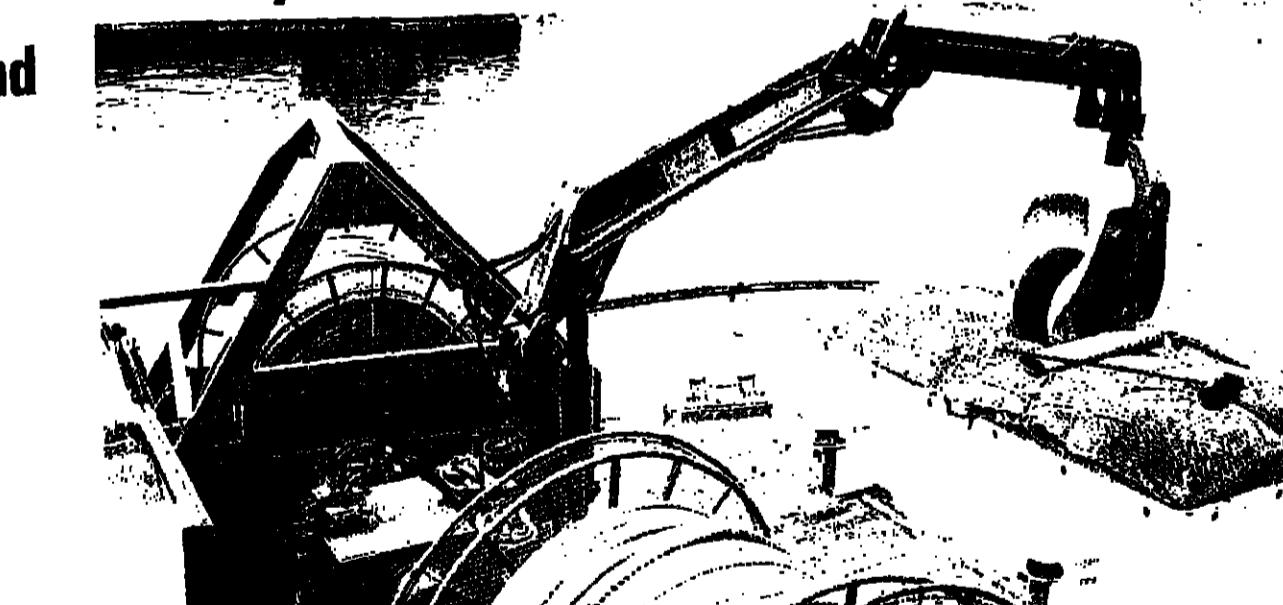
The Haakonsen yard is a member of the West Norway Shipbuilders' Association and it did the installation in seven weeks.

Included in this are three steel tanks able to hold 80 tons of fish in cooled seawater, a Lehmkühl refrigeration plant, a York Shipley Freon compressor, and a Lister 80 hp auxiliary.

The three aluminium hatch covers to the RSW tanks are shown right

**Power and Efficiency from Lossie Hydraulics**

**Skipper Ian Sutherland  
comes back to  
Lossie Hydraulic  
for a second time  
for his new  
KESTREL**



A view of the stern of *Kestrel* showing winch, rope reels and power block. The structure over the starboard rope reel would be used to carry a towing block should the vessel switch to white fish pair trawling.

**Scottish engineering skill  
at the service of skippers  
throughout the world**

**LOSSIE HYDRAULIC COMPANY LTD.**  
ROSEHALL WORKS, ST. CRISPIN PLACE, FALKIRK,  
STIRLINGSHIRE, SCOTLAND. Tel: FALKIRK 28494.

TELEPHONE 0324-28494 TELEX 778144  
SERVICE DEPOT, PETERHEAD. Tel: 034-381489

**POWER BLOCKS - (UP TO 36" DIA. SHEAVES)**  
**MULTI-SHEAVE NET HAULERS - (15" DIA. SHEAVE)**  
**GILL NET HAULERS - (17" DIA. SHEAVE)**  
**DISCHARGE WINCHES - (SPEED OF 120FT/MIN. OR  
MORE. 1 TON PULL)**  
**NET DRUMS - (4, 6, 8, 10 & 13 TON PULL)**  
**ROPE REELS - (9 COILS, 21" ROPE UP TO 24 COILS, 31" ROPE)**  
**ANCHOR WINDLASS**  
**GILSON WINCHES - 6 TONS LIFTING CAPACITY**



## Ever thought of tiny Iceland as a big market?

Some do but most don't. And they're wrong. When it comes to fishing and fish processing the Icelandic market is big. Bigger than some people think.

Last year Iceland invested \$75 million in fishing and processing, and most of the equipment came from abroad. So couldn't the Icelandic market be more important to you than you thought? Or what was your share of those \$75 millions?

The Icelandic market for fishing equipment is too big to be ignored. So why not start your marketing effort now. Advertising in Sjávarfréttir, the biggest fishing magazine in Iceland, could be of great help to you. Give it a try!

For further information write to Sjávarfréttir, Box 1193, Ármúli 18, 105 Reykjavík, Iceland.

If Iceland is your target Sjávarfréttir can help.



A miðum með b.v. Jóhann Geirmundsson

# THE BRITISH GO BACK!

## ...to sell equipment

THE BRITISH will be going back to Iceland next month.

But not in trawlers. And not for fish. In an enterprising project, organised by the British Marine Equipment Council and supported by the British Overseas Trade Board, 19 companies, whose activities range from boatbuilding to publishing, will be taking part in a seminar and mini-exhibition in the Hotel Lofleider, Reykjavík.

These will take place on Tuesday and Wednesday, October 3 and 4. They have been prepared over several months by the Fishing Division of the BMEC, and this work has involved a visit to Iceland by BMEC secretary Michael Morris and a visit to the UK, to address a meeting of the Division, by Mar Elisson, director of the Icelandic Fisheries Association.

The participants are under no illusion that the British way back into the Icelandic market will be easy. Memories of the bitter fish war between the two countries are still

too recent. But Icelandic vessels have begun to land their catches at some UK ports where they have taken record earnings from markets short of cod and related fish.

The industry in Iceland has long obtained equipment from the United Kingdom. The object of the exercise in Reykjavík in October is to give fishermen and others an opportunity of hearing about new technology and seeing and discussing new equipment. Standard-size displays will be grouped in the hotel close to the conference hall.

The seminars will be opened on the

Tuesday morning by W. N. Robinson, chairman of the BMEC Fishing Division.

In the first session, Stone Manganese Marine will give a paper on bow thrusters and Lister Marine one on the installation of diesel engines in fishing craft.

In the afternoon, CompAir Industrial will discuss fishing, compressed air and its applications; F. Bamford & Co. will deal with advantages of controllable pitch propellers in fishing and Kort Propulsion will present a case for Kort nozzles.

Sessions the following day will include papers by Hall Thermotank on refrigeration products and their application, by RFD Inflatables on liferafts, by Pains-Wessex on marine pyrotechnics, by Dunlop on inflatable boats, APV Purafreeze on fundamentals of freezing and thawing, and Kelvin Hughes on radar as a fishing aid.

The seminar and exhibition will be open to interested people in the fishing industry all over Iceland.



Seminar and mini-exhibition organiser Michael Morris of BMEC. Preparations included a visit to Iceland.

## How forums help the manufacturer

DESCRIBING the development of the type of "fishing forum" which it will be presenting in Reykjavík, the BMFC said that British equipment makers were quick to realise that changes taking place in the fishing industry would put special demands on them.

In addition to their traditional technical skills, they have also had to develop in such areas as marketing, finance and commercial practice.

By grouping together to set up a Fishing Division in the BMFC, they have harnessed their forces and put themselves in a position from which they can make a substantial contribution to the efficiency, output and achievement of fishery industries all over the world.

The Division now has 54 members and is still growing. High in its priorities, and particularly relevant in today's business climate, is its ability to offer equipment packages or series purchases through bulk credit facilities.

### Flexible

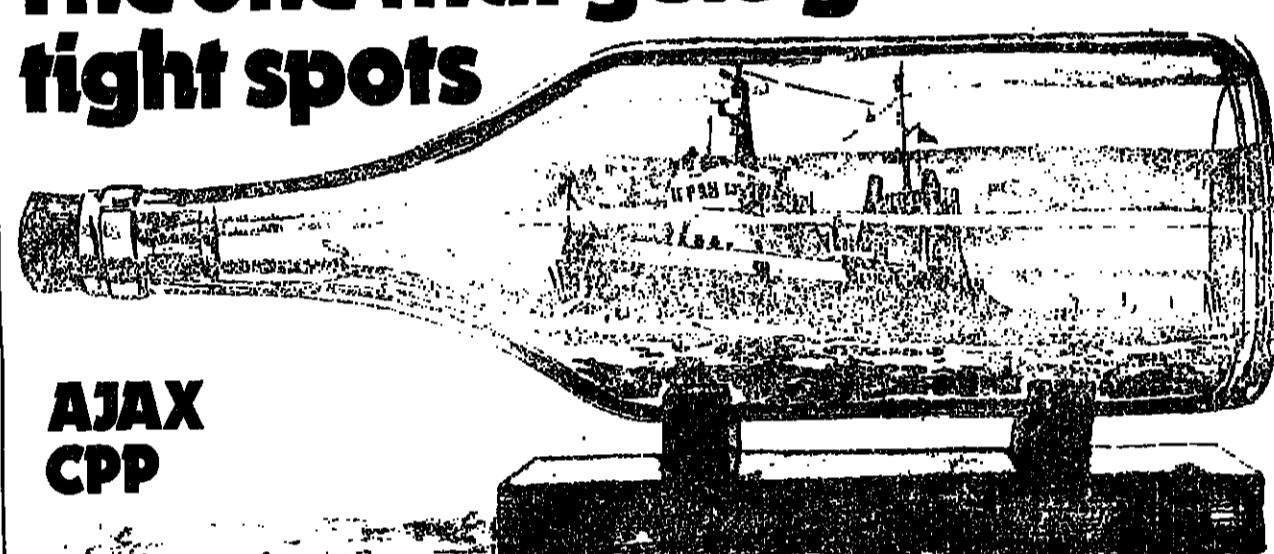
This, explains BMFC, is a flexible service which can be used for an entire ship's equipment or for a smaller specialised package of fewer items.

It is also a comprehensive service which can include consultancy advice on fleet development; financial, credit and contractual arrangements; and operational and service recommendations.

Communication becomes a particularly vital factor in times of change and a productive interchange of information between supplier and user is essential in these circumstances.

The producer must be fully aware of just what the

## The one that gets you out of tight spots



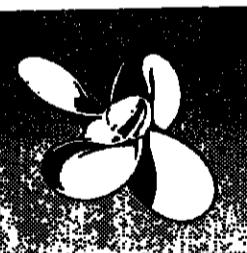
### AJAX CPP

For very high manoeuvrability—essential in confined waters, here's the system to get you out of the tight spots. Effortlessly!

Sensitivity. Immediate response. Improved fuel economy. Adjustable pitch for optimum power at the selected engine speed. These are just some of the CPP benefits experienced by fishing vessels, workboats, cargo vessels and naval craft the world over.

Ajax CP Propellers, with their patented cycloidal-cam block system, have a great deal to offer.

Shouldn't you find out just how much?



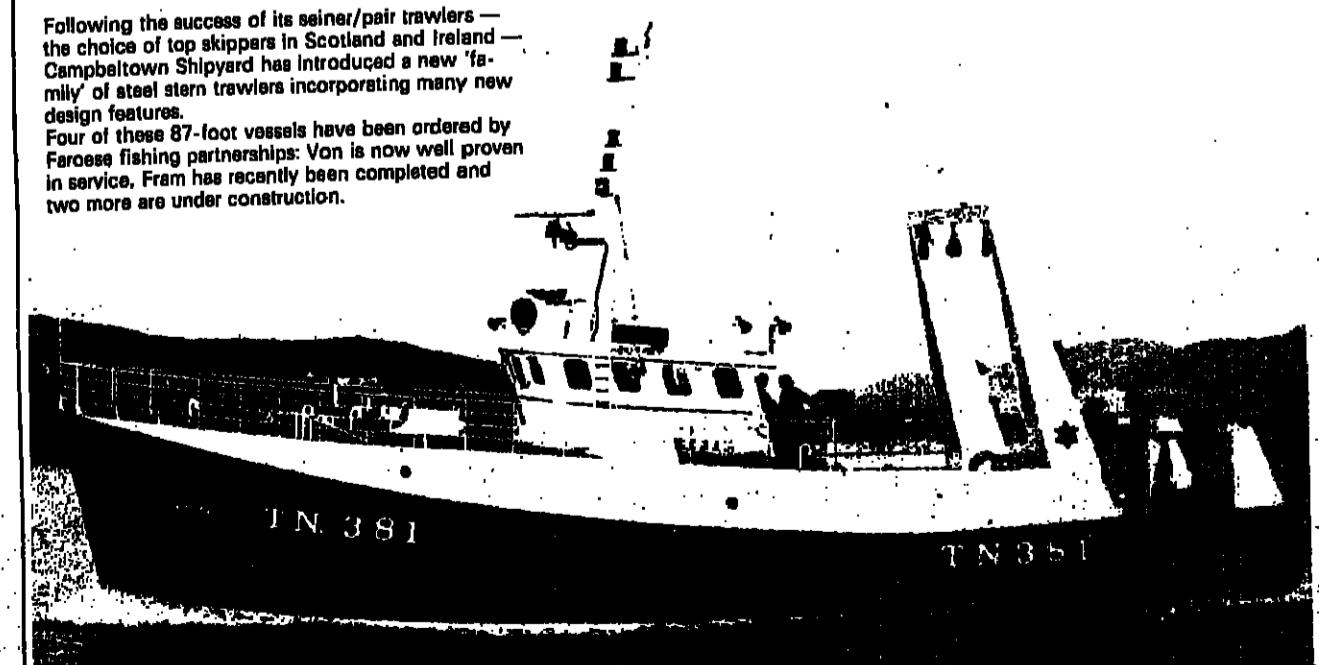
**F. BAMFORD AND CO LTD**

Ajax Works, Whitehill,  
Stockport, Cheshire SK4 1NT  
Tel: 061-480 6507-8 Telex 668518

## A new family of stern trawlers from Campbeltown

Following the success of its seine/pair trawlers — the choice of top skippers in Scotland and Ireland — Campbeltown Shipyard has introduced a new "family" of steel stern trawlers incorporating many new design features.

Four of these 87-foot vessels have been ordered by Faroese fishing partnerships. Von Ida is now well proven in service. Fram has recently been completed and two more are under construction.



**CAMPBELTOWN SHIPYARD LTD.**

Trench Point, Campbeltown, Argyll. Telephone 0586 2881/2 Telex: 779478

THE FIRMS TAKING PART: TURN TO PAGE 38

**FIMCO**  
Horizon  
in  
Iceland

**WE'LL  
BE  
THERE!**

WITH ITS associate publications, the British weekly *Fishing News* and the quarterly *Fish Farming International*, FNI will be on display at the BMEC mini-exhibition.

We shall be represented in Reykjavik by FNI assistant editor David Glen and by assistant advertisement manager Michael Purves.



Built for the Faroe Islands, the 26.5 metre stern trawler *Von* is one of four ordered from the Campbeltown yard in Scotland.

## Is your propeller working for you? Or against you?

If you run a small workboat, like a tug or trawler under 1200 bhp, chances are you're running around with the wrong propeller.

And that costs money.

We make a wide range of propellers for all kinds of craft. But our special strength lies in the design of multi-pitch propulsion systems for the smaller type of workboat.

They give you the fuel economy of fully controllable pitch propellers at two thirds the price. And they're absolutely maintenance-free.

And when did you last want to make a fine pitch adjustment running at speed?

We can supply our multi-pitch propellers with a mechanical adjuster to suit your existing equipment. Or with a special inside hydraulic actuator to allow you to change pitch from the bridge.

They're designed on simple engineering principles and are very easy to assemble and install. They're also totally fail-safe.

Our propulsion system brochure will tell you more.

**NEWAGE**  
Newage Engineers Ltd.  
A member of the Charterhouse Group,  
Marine Propulsion Division,  
Propulsion Works, Duchess St, Shaw, Lancs,  
OL2 7UX, England. Tel (070 69) 47632  
Telex 83371

It will feature its 87 ft (26.52 metre) long vessel, similar to our ordered by Faroese partnerships, and a larger vessel of 105 ft.

Campbeltown's yard at French Point in Argyll has completed two of the Faroese boats, the *Von* and the *Fram*, and the other two are under construction.

Introduction of these stern trawlers follows the building of 27 seiner pair trawlers for UK owners, based on standard hulls of 75, 80 and 85 ft.

FIRMS TAKING part in the mini-exhibition being organised by the British Marine Equipment Council in the Hotel Loftleider in Reykjavik on October 3 and 4 include a shipbuilder, suppliers of refrigeration plant, engine and propeller manufacturers, makers of rubber boats and liferafts, and two publishers of fishery journals.

Campbeltown Shipyard of Scotland is to highlight its compact stern trawlers, the first of which are proving successful fishing in Faroese waters.

It will feature its 87 ft (26.52 metre) long vessel, similar to our ordered by Faroese partnerships, and a larger vessel of 105 ft.

Campbeltown's yard at French Point in Argyll has completed two of the Faroese boats, the *Von* and the *Fram*, and the other two are under construction.

Introduction of these stern trawlers follows the building of 27 seiner pair trawlers for UK owners, based on standard hulls of 75, 80 and 85 ft.

### Working model

On its stand, F. Bamford & Co. Ltd., will exhibit a hand-operated perspex working model of its Ajax controllable pitch propeller hub together with graphics showing applications.

It will also show a cut-away model of its range of Ajax fluid air equipment.

Among fish handling gear, James Robertson will feature its range of winches for trawlers and other fishing vessels.

A newer company in this field is Colts Engineering which has established itself over the past two years as a supplier of deck machinery. Its products include twin-drum trawl winches from 0.75 to six tons mid-layer pull.

Products to be presented on the stand of the Marine Propulsion Division of Newage Engineers will include its H2P hydraulically-actuated two-pitch propeller system, which was described in FNI in May.

Installed in the Irish boat *Adrienne*, this can be controlled from a simple switch panel in the wheelhouse. It gives the skipper two pre-set blade pitches matched to the characteristics of his boat.

### Fishermen keen

Kort Propulsion Ltd. will be giving a paper at the seminar as well as presenting its ducted propeller systems in the mini-exhibition.

According to Kort Propulsion, owners of fishing craft from 10 metres long upwards seem keen to take advantage of the increased thrust provided by a nozzle system.

"The number of orders and enquiries over the past year for new and existing vessels," adds Kort, "confirm this fact, despite uncertainty in the industry."

Dunlop will be featuring its inflatable boats and liferafts in the mini-exhibition. Ron Naud, services manager for Dunlop Marine Safety Products, will be giving a paper on the boats during the seminar.

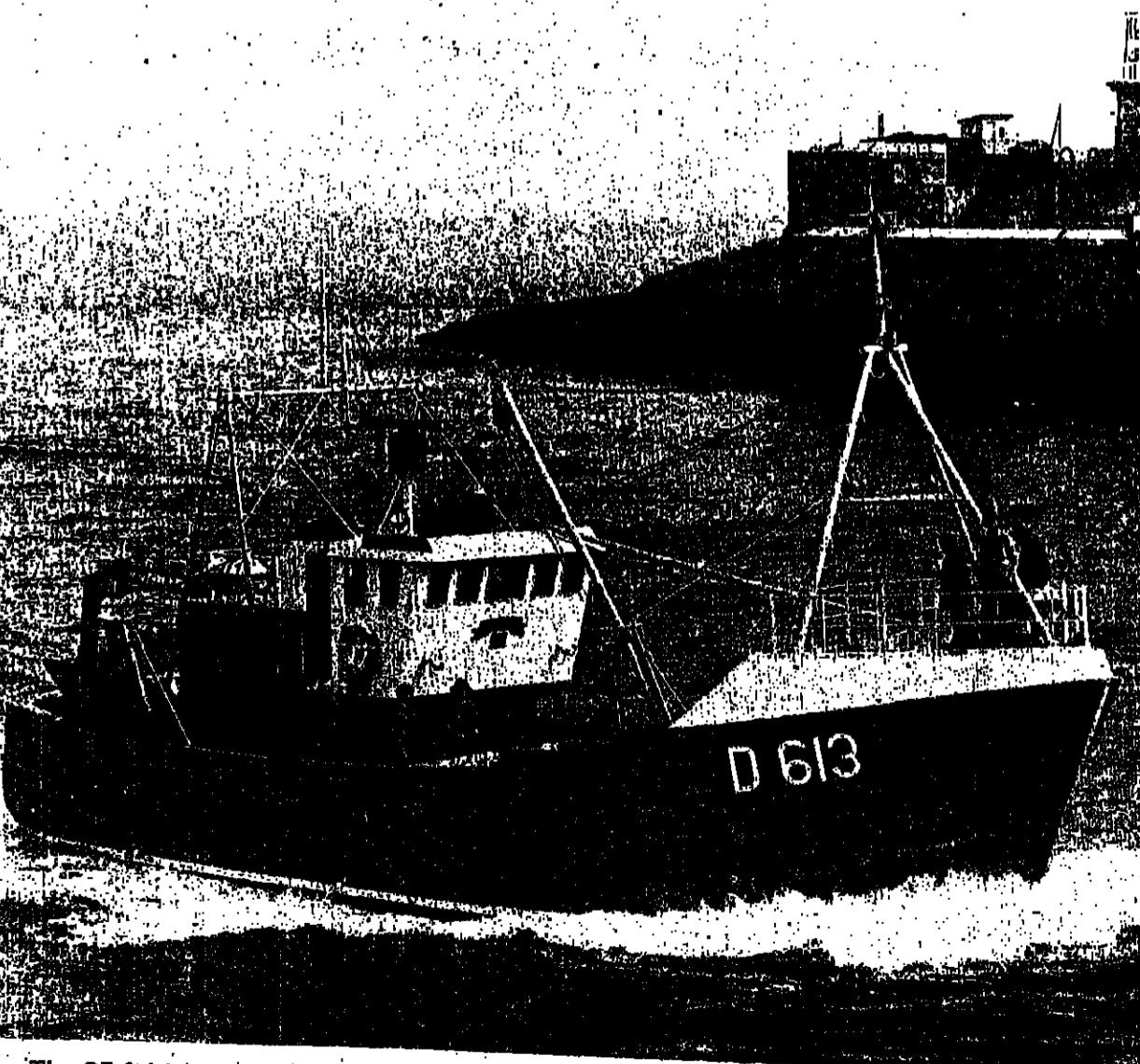
Other exhibitors include Humeworthy Pumps, APV Parafreeze, Hall-Thermotank Refrigeration, Stone Manganese propellers, ComPair, Kelvin Hughes radar, echo sounders and radio telephones, Pains-Wessex marine pyrotechnics and RFD inflatable liferafts.

WALCKER & CO. KG D-2854 LOXSTEDT

**WACO**

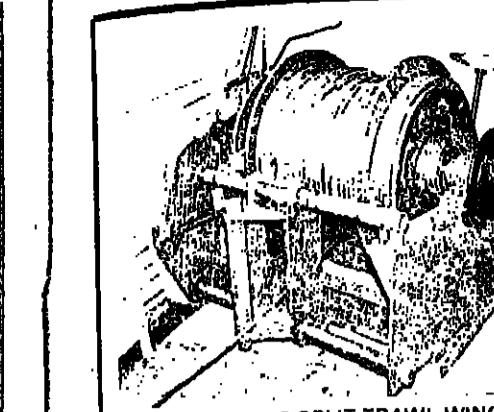
Fish-Washing  
Machine

TELEX 238894 PHONE (04744) 2031

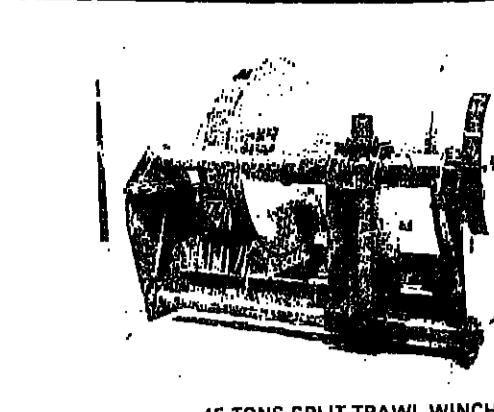


The 66-ft Irish side trawler "Adrienne" – launched April, 1978 – is equipped with a Newage H2P/1 two-pitch propeller, driven by a 415 bhp Kelvin-TASC8 engine through a factory-modified Reintjes reverse reduction gearbox with 4:1 reduction ratio. Average fuel consumption is around 8.5 gallons an hour – and Skipper-Owner Gerry Moore estimates his fuel costs are more than 30 per cent lower than similar vessels with fixed-pitch propellers.

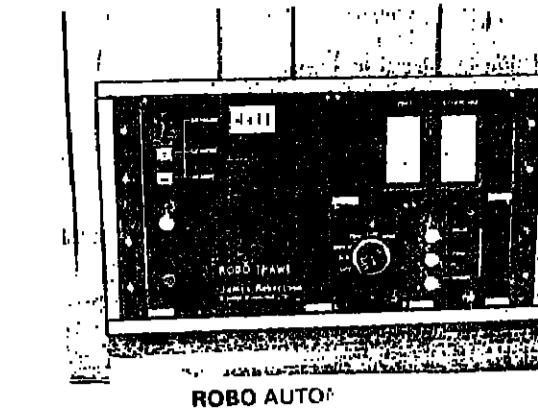
# The products that will be on show



8 TONS SPLIT TRAWL WINCH



45 TONS SPLIT TRAWL WINCH



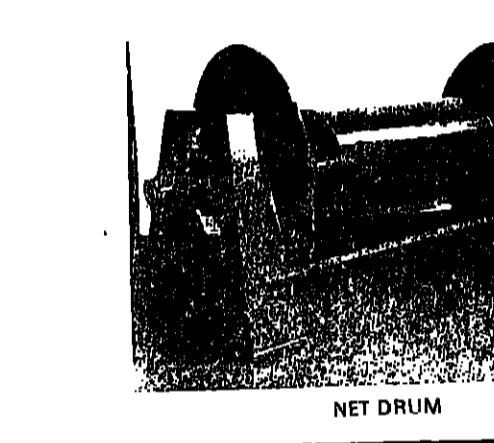
ROBO AUTOMATION



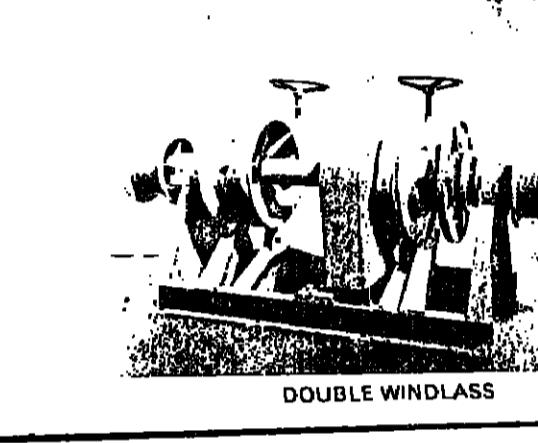
OUTHAUL CAPSTAN



SINGLE WINDLASS



NET DRUM



DOUBLE WINDLASS

MEDIUM PRESSURE HYDRAULIC  
DECK MACHINERY

FROM

**JAMES ROBERTSON & SONS  
(Fleetwood) LTD**

DOCK STREET  
FLEETWOOD, LANCS, ENGLAND

Telephone 03917 - 3414 Telex 67231

16 TONS GILSON WINCH

## Iceland sees British Suppliers' capability

At a special Forum presentation in Reykjavik, British suppliers are showing what they have to offer the commercial fishing industry in Iceland.

The presentation particularly emphasises the streamlined industry service which is now available from British suppliers. This has been possible since the major manufacturers combined to set up a Fishing Division of the British Marine Equipment Council (BMEC), sponsors and organisers of the Reykjavik presentation. In practical terms this means that users of British fishing equipment now have:

- ★ a single contact point for reaching British equipment manufacturers
- ★ a source of company and product information
- ★ a means of obtaining effective cost comparisons and product evaluation
- ★ a co-ordinator and contractor for the purchase of complete packages of equipment
- ★ a consultant on fishing fleet development and equipment application

The services of BMEC's Fishing Division are quite free, worldwide, to all those involved in the specification, purchase and use of equipment and services in the commercial fishing field. They can be applied as effectively for a single vessel as for a complete fishing fleet.

Products and services of the following companies are directly represented:

**APV-Parafreeze**  
**F. Bamford & Co.**  
**Campbeltown Shipyard**  
**Colts Engineering**  
**CompAir Industrial**  
**Dunlop-GRG Div.**  
**Fishing News International**  
**Hall-Thermotank Products**  
**Humeworthy Engineering**  
**Kelvin Hughes**

The Forum is being held from 0930 to 1700 daily at the HOTEL LOFTLEIDER, Reykjavik, on October 3rd & 4th, 1978. Technical conference sessions, held concurrently, include papers on propulsion and ship positioning, diesel engines, the uses of compressed air, refrigeration, freezing and thawing, liferafts, radar and pyrotechnics. The Forum will also be open to the general public from 1930 to 2130 on Wednesday, 4th October.

## British fishing equipment and services

The following companies are all Members of BMEC's Fishing Division:

**CONSULTING — TECHNICAL AND FINANCIAL**

A.P.P. Appletons (London)  
ABATY — Marine Division  
British Overseas Engineering and Credit Co.  
Easems

The Napier Co. (Aberdeen)

White Fish Authority

PAFCO

COLK & GALLEY EQUIPMENT

Colk Engineering

Kempster

James Robertson & Sons (Fleetwood)

Fish C

Ansell Jones & Co. Ltd.

**FISHING ELECTRONICS & NAVIGATION AIDS**

Aeronautical & General Instruments

St. Brown

Henry Brown & Son

Cetrol

Chemikraft Instruments

The Decos Navigator Co.

TELEFON

COM-AIR INDUSTRIAL

Dorman Diesel

Electrical Controls Humberstone

GBC Marine and Industrial Gear

Gilliat

Hannay

## PORTS &amp; MARKETS

**TOP DOG PORT**

**British merchants cash in on a once-scorned fish through exports...**

**NETS?  
NO  
PROBLEM!**

Trawl nets for all sizes of vessels from inshore trawlers up to factory ships.

Bottom trawls - mid-water trawls - high opening bottom trawls - full range of complete trawl gear.

CATCHING, processing and marketing of dogfish (*Squalidae*) has become big business in the English trawler port of Grimsby. It has developed into a non-stop year round operation which has made the Humber port the top centre for this species in Britain and probably in Europe.

Despite its size and increasing prominence, the Grimsby dogfish industry is shrouded in mystery, but then fishing has always been a secretive business. For generations skippers have guarded their favourite grounds and markets.

At Grimsby a small group of merchants specialising in dogfish has gained a reputation for quality.

Their businesses have been built up (particularly the export trade for skinned dogs and flaps) by hard work and through personal contacts.

One dogfish specialist in Grimsby is A. R. Jenner (F.M.) Ltd., easily identified by the brand name "Jendog". The firm was founded in 1937 by Arthur R. Jenner and is now run by his son, David. These days more than 75%



**THE DOG SKINNERS:** The head of each fish is hooked to a board then the skin torn backwards to the tail. This needs a strong arm.

per cent of all production is dogfish. "We can handle 14,000 lb (6.25 tons) a day without sweating and 21,000 lb with ease in winter," says David Jenner.

Most of the export orders come in by telex. Orders are rapidly processed from fresh fish, packaged and sent off

often only hours after receipt.

The firm processes headless, skinned dogfish largely for France and Belgium. By using contracted refrigerated transport and Sealink ferries, fish from Grimsby is on the European Continent just 16 hours later.

Jenner also produces large quantities of dog flaps. But these are passed on to a flap specialist for export. The best outlet is West Germany.

#### Freshness

Quick processing, handling and despatch all contribute to securing and holding business, but the most vital factor is probably the freshness of supplies of dogs to the factory.

"I buy fish which are rarely more than a day old to maintain a top quality product," says Mr. Jenner. "Once you have this and the markets, the brand name sells itself."

The firm, like others in the trade, buys at least half its supplies from outside Grimsby depending on the time of the year. Fish is brought in overland from all over Britain. Regular consignments come in by road from Scarborough, Fraserburgh, Whitby, North Shields, Buckie... to mention only some of the sources.

From October onwards, after the coastal season has closed and the good trawled westerly dogs, are

beginning to taper off, Jenner call heavily on supplies from the west coast of Scotland.

Ungutted fish are usually graded into three groups: small (1.5 to 2 lb), medium (2.5 to 4 lb), and large (4 lb up). The dogfish Skinner is a skilled worker who combines a keen eye with a sharp knife and no mean physical strength to cut a whole range of products with the minimum of waste.

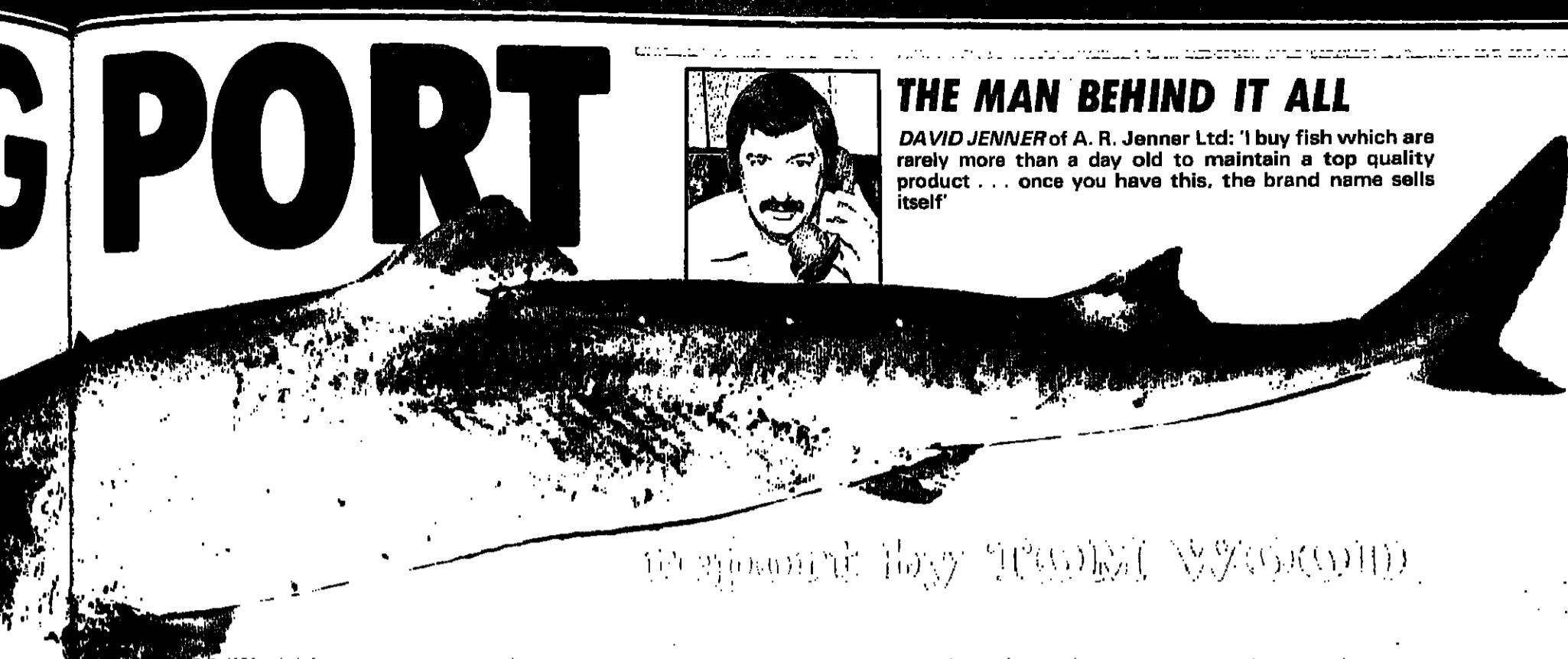
The process is well standardised throughout the trade. Skin, head and guts are sold to Grimsby Fish Meal Company. So too are the livers from which oil is extracted. The tails are also saved and are exported to Norway where they are dried and a nutritional fibre extracted.

What happens to these tail fibres is yet another puzzle of the trade. It could be a Chinese one too, for some people believe they end up eventually in the Far East as an ingredient in sharkfin soup.

#### Top sellers

All this leaves the two most saleable items on which the Grimsby dogfish industry is mainly based... the skinned carcase and the flaps.

Dog flaps come from the underside of the fish. They are rich, fleshy rectangles of high protein meat which extend from the nape to the lower



#### THE MAN BEHIND IT ALL

DAVID JENNER of A. R. Jenner Ltd: "I buy fish which are rarely more than a day old to maintain a top quality product... once you have this, the brand name sells itself."

Information: Tony Treadwell (W.G.C. 111)

## Fisheries projects and worldwide marketing.

Joint Trawlers undertakes the management and development of fishery projects, anywhere in the world. We participate actively in joint ventures and other kinds of international enterprises in partnership with both private industry and government agencies.

Our activities include:  
— trading in frozen fish and other seafood  
— marketing and distribution of fish products  
— supply of vessels, equipment, processing plant and cold stores  
— handling, transport and refrigeration systems  
— turn-key deliveries, package deals.

Headquarters:  
**JTL Sweden AB**  
Kullagatan 10, 252 20 Helsingborg, Sweden  
Phone: 042-14 91 90, Telex: 72596/9 INFISH S  
**JTL Shipping**, Tel: 72617, Transago, Tel: 72636

Joint Trawlers Management Comp.  
Strandvejen 164, 2920 Charlottenlund, Denmark  
Phone: 01-63 66 00, Telex: 15960 JOINT DK

Offices also in:

**NORWAY**  
JTL-Norway  
Phone: 2671675  
Tlx: 11704 HEVOL N  
Address: P.O. Box 3659  
Oslo 1

**SCOTLAND**  
JTL-Scotland  
Phone: 224-552-39  
Tlx: 73233 JOTRAW G  
Address: 37, Albert St.  
Aberdeen, AB1 1XU

**ENGLAND**  
JTL-International  
Phone: 7372-414-96  
Tlx: 8812201 JAYTEE G  
Address: Bircheside House  
Birkheads Road  
Regate RH 2, OAU  
Surrey

**PORTUGAL**  
JTL-Portugal  
Phone: 617-281-232-0  
Tlx: 370241  
Address: P.O. Box 129  
Lisbon

**USA**  
**JTL USA**  
Navice Unidos  
Phone: 617-281-232-0  
Tlx: 25-7103471767 JAYTEE CLOS  
Address: P.O. Box 129  
Gloucester/Mass-01930

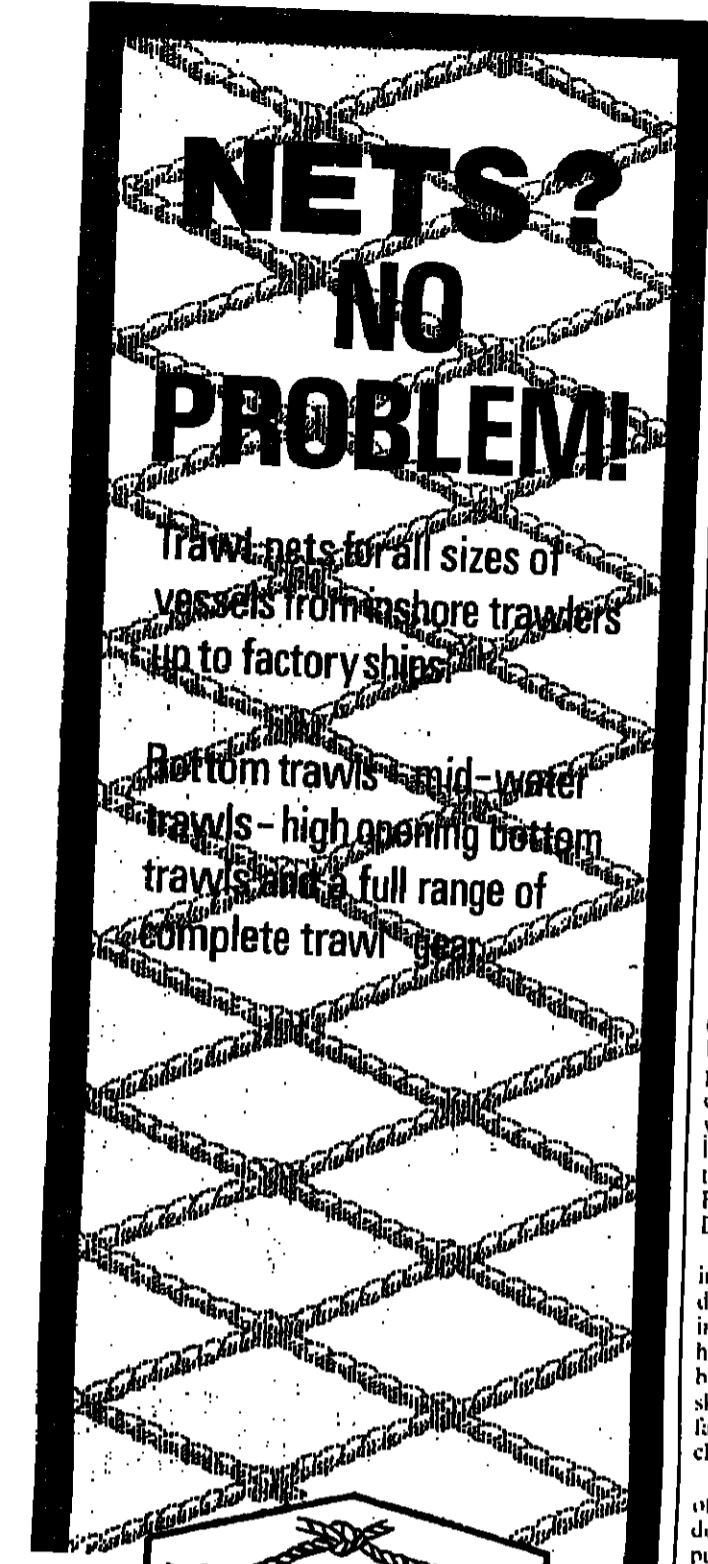
Representative offices:  
**PERU**  
Lima Peru  
Phone: 40 2993  
Tlx: 21085 P.E. NAVJTL  
Address: Manuel A. Fuentes 502  
Lima-27

**SENEGAL**  
Dakar-Senegal  
Phone: 233-32463  
Tlx: 577 Vanou  
Address: Avenue Faidherbe  
Dakar 7



AUSTRALIAN MARKET MISSION

TO JAPAN — turn to page 46

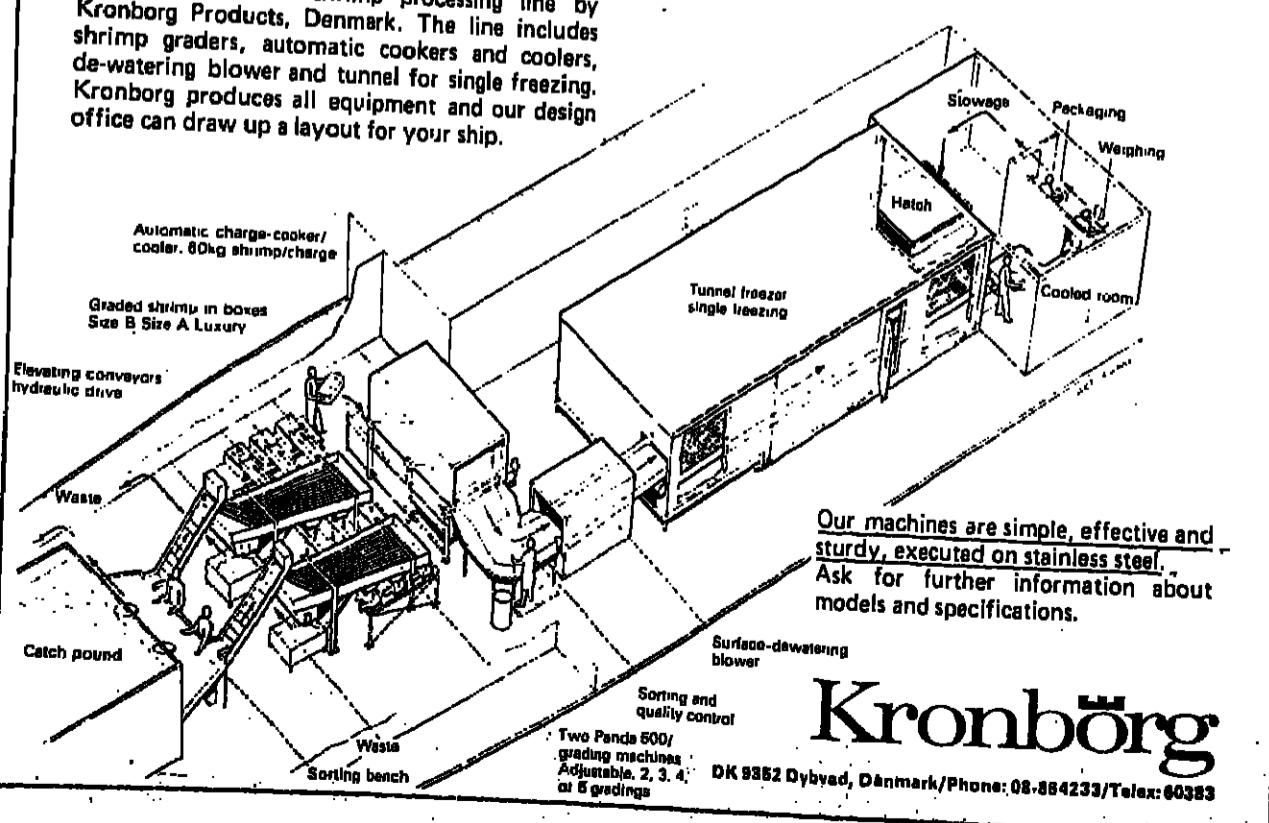


**J.H. MEWES  
& v. EITZEN**

2 Hamburg 50 Neuer Fischereihafen, Ausrüstungskai 2  
Phone: 38 79 45 and 38 79 46, Cables Taunatz Hamburg

## ON-BOARD SHRIMP LINE

Complete on-board shrimp processing line by Kronborg Products, Denmark. The line includes shrimp graders, automatic cookers and coolers, de-watering blower and tunnel for single freezing. Kronborg produces all equipment and our design office can draw up a layout for your ship.



Kronborg

DK 9382 Dybav, Dänmark/Phone: 08-884233/Tel: 60383

## POR TS & MARKETS

### Duty on subsidies

JUST AFTER waiving countervailing duties on \$200 million worth of imported Canadian fish, the United States Treasury Department began an investigation into whether duties should be imposed on \$83.7 m. of Canadian groundfish, scallops and lobsters imported every year.

As it did in two previous cases last year, the Department ruled tentatively that Canadian fishing industry support programmes constituted export bounties or grants under US regulations.

If an investigation confirms this, countervailing duties up to the value of the subsidy might be considered.

In the previous cases, duties were waived until next January in return for Canadian promises to reduce or eliminate most support programmes. The latest investigation centres on programmes operated by the Canadian federal government as well as those of the Maritime Provinces and Newfoundland.

# AUSTRALIA PROBES JAPAN SEAFOOD MARKET

## In 1980, the mermaid of Copenhagen welcomes the world fishing and marine industry.

For visitors and exhibitors alike, the Bella Center in Copenhagen will be the centre of the world fishing and marine industry in June, 1980.

Presided over by the Famous Mermaid of Copenhagen, the World Fishing Exhibition '80 will cover every aspect of international fishing and marine activities. It will be a meeting place for the entire industry.

The World Fishing Exhibition covers the whole spectrum of the commercial fishing industry: ships and equipment for the finding, catching, and processing of fish at sea as well as every aspect of the land-based industry including processing, packaging and marketing. It will also include marine products.

The last event in Halifax, Canada, attracted exhibitors from 14 different countries, and 25,000 visitors from 41 countries. The 1980 exhibition will undoubtedly exceed even this record participation.

Both visitors and exhibitors alike will enjoy the magnificent facilities of the Bella Center, one of the most sophisticated exhibition complexes in the world, and the largest in Northern Europe. Only minutes away from the port where boats may be exhibited. It is located midway between the centre of Copenhagen and the International Airport.

And Copenhagen itself is a superb setting for the 1980 World Fishing Exhibition. One of Europe's busiest traffic intersections, in the busy link between Scandinavia and the Common Market, it has all the support facilities to match this major international event. The world-famous Tivoli Gardens, superb after-business dining and entertainment facilities, and the largest hotel capacity in Scandinavia make it the perfect choice to be the centre of the world fishing and marine industry in 1980.

**The World Fishing Exhibition 1980  
The Bella Center, Copenhagen  
2-9 June 1980**

Sponsored by: World Fishing Magazine  
Supported by: Danish Ministry of Fisheries  
Danish Fishing Organisation  
Danish Ocean Fishers Organisation  
Port of Copenhagen Authority  
The Danish Association for Processing and Export of Fish Products



Please send me further information about the World Fishing Exhibition 1980. I am a potential exhibitor/visitor. \*Please delete as necessary.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_

FNI/9/78

Industrial & Trade Fairs International Limited,  
Radicliffe House, Blenheim Court, Solihull, West Midlands B91 2BG. Telephone 021 708 6707. Telex 337073.



### Cut port charges to save fleets

OWNERS from England's three main trawler ports — Hull, Grimsby and Fleetwood — met in Edinburgh last month to formulate a joint approach to the government for assistance.

They are expected to request that payments for dock modernisation schemes in the ports should be written off as part of a plan to keep vessels fishing.

All three ports have been hit by drastic cuts in the size of their fleets. In Hull, for example, only two of the port's side trawlers were at sea early in August. Among the ships laid-up is the *Somerset Mugham*, famous as one of the most consistent top performers in the better days of the distant water fleet.

At Grimsby, British United Trawlers has taken three more of its K-class side trawlers out of service, leaving it with a fleet of just 14 wet fish ships.

When the ports were modernised, 60 per cent of the cost came from government funds while the other 40 per cent was to be met by increased landing charges.

Now the industry hopes these will be reconsidered in order to keep the ports working.

The owners argue that they need to keep port facilities and labour together so that when the EEC finally agrees on a new Common Fisheries Policy, and they decide on fleet restructuring, the back-up will be there.

### Wholesalers criticised

THERE is need for a law in Spain to reorganise commercial distribution of fish and break-up the present oligarchy of wholesalers. This was the conclusion of the Spanish Senate following a recent debate.

Pointing to this and other problems, Senator Fernandez Calvino urged that efficient state control be introduced to curb bad marketing practices.

Seconding him, Senator Jimenez Navarro said he supported an investigation and the preparation of a white paper on the subject.

It was noted during the debate that a typical wholesaler was more interested in selling one truck load of lobsters, or other

high-priced shellfish, rather than, say, 40 loads of sardines.

Pointing to this and other problems, Senator Fernandez Calvino urged that efficient state control be introduced to curb bad marketing practices.

Seconding him, Senator Jimenez Navarro said he supported an investigation and the preparation of a white paper on the subject.

## Calcutta fishing complex planned

### Mission ends 10-day tour with hopes for bigger exports

### KARACHI STUDY

THE government of Sind province in Pakistan is spending Rs450,000 (£25,000) on a feasibility study for the expansion and improvement of Karachi fishing harbour.

Investigating the harbour, a sub-committee of the Fisheries Board has suggested that it and the market should be run by a private corporation.

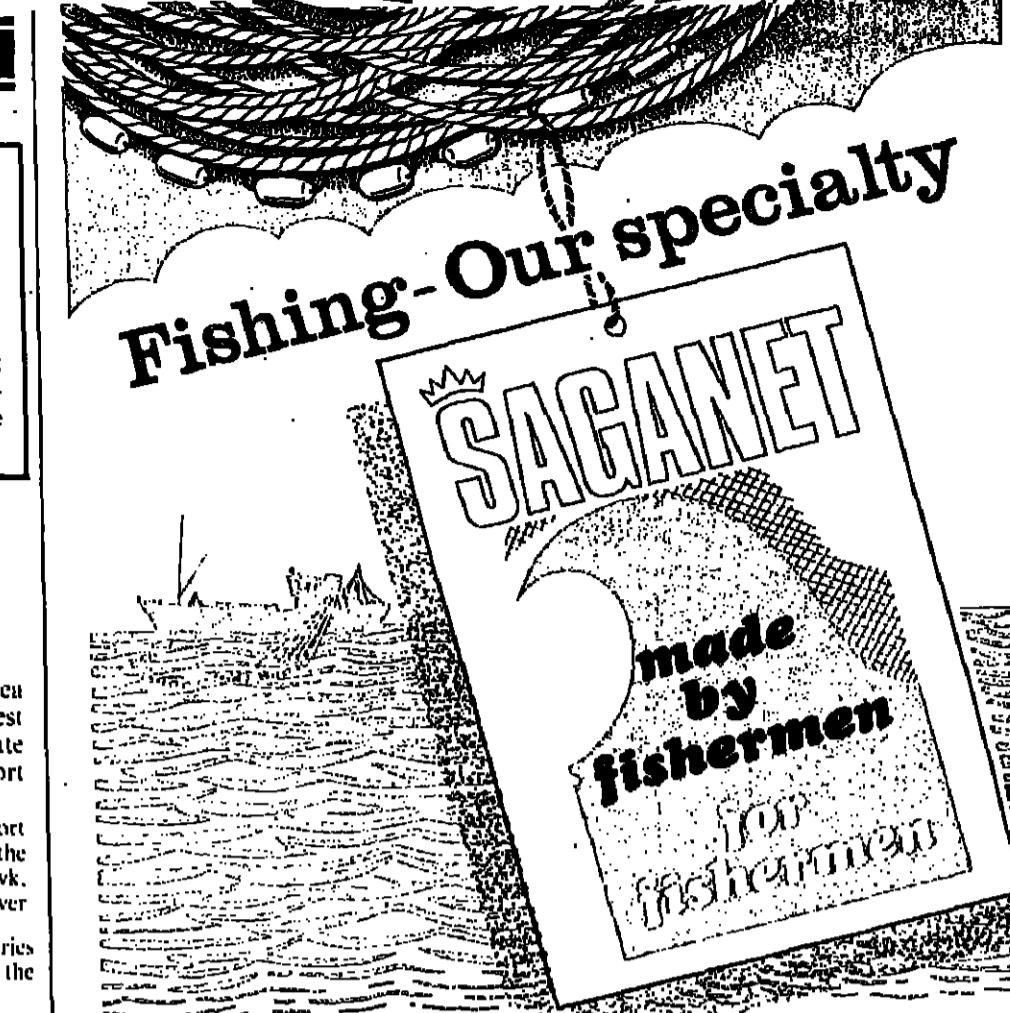
This should handle fish supply, administer and maintain shore facilities, control fish handling, and run fish auctions.

Mr. De said recently that the "early teething troubles" of the trawlers were over.

The biggest problem faced by the Corporation was that of finding trained crews.

### Export drop

SMALLER catches of shrimp and other saleable species led to a fall in Pakistan's seafoods exports. The total for 1977/78 was 13,308 tons worth US\$34.2 million, compared with 14,298 tons and \$38.5 million in 1976/77.



PURSE SEINES, TRAWLS,  
GILL NETS, LONG LINES, ROPE,  
TWINE, SHEET NETTING -  
KNOTTED and KNOTLESS, Etc.

**SAGANET**

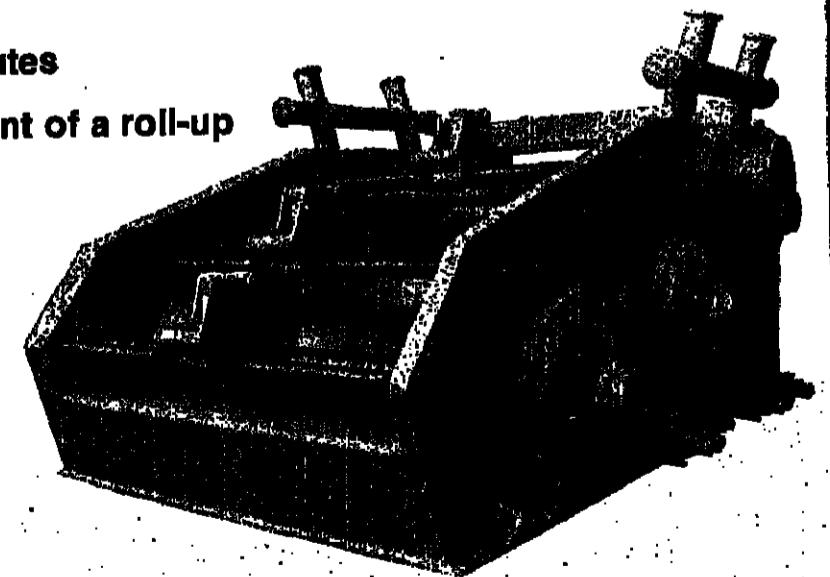
A/L FISKERNES REDSKAPSFAKRIKK  
P.O. Box 175, 5001 Bergen, Norway  
Telex: 42187, Telephone: 47-5-685300. From 3rd quarter 1978: 47-5-330800

## MARCO . . . introduces another first

### New, powerful hydraulic tuna purse seine winch

#### MARCO SuperSeiner II

- purses a 1000-fathom, 25-strip net in less than 20 minutes
- either purse drum can haul entire purse line in the event of a roll-up
- dual drive for independent control of each purse drum
- main drum capacity of 1800 fathoms of 3/4" purse wire
- purses at speeds 100% faster than previous winches
- ring lifting capacity exceeds 20 tons
- powerful 440-hp input drive



The MARCO SuperSeiner II, now being fitted on the newest tuna purse seiners, is designed to handle the ever increasing net sizes being used in the developing tropical Pacific fishing areas.

**MARCO**

MARINE CONSTRUCTION & DESIGN CO.  
2300 West Commodore Way • Seattle, WA 98199 USA  
Tele (206) 285-3200 • Telex: 32-0098 • Cable: MARCO

If you're involved in the handling of fish and are continually hampered by cuts and other injuries then the latest developments from **METAL-CHAINEX** will be of interest to you...



Chain-mail gloves and "LAMEX" Aprons ensure complete protection during the processing or cutting of fish when using shear or band saws.

Métal-Chainex chain-mail gloves and aprons are as flexible as fabric with the strength of steel, yet are lightweight and comfortable to wear.

For further details contact the manufacturer direct:

**METAL-CHAINEX**

30 rue de Gramont 75002 PARIS  
Téléc : 220490 F.

adcom

## Fishing vessels — with or without financing

We are international brokers representing many leading builders of fishing boats

We can arrange unlimited financing for all kinds of fishing vessels for governments, private or public corporations, and individuals

Write, call or Telex for more information  
**American Continental**

960 South Springfield Avenue, Springfield, NJ 07081 U.S.A.  
201/379-2960 Telex 139 150

Before you Buy or Build your Boat  
Make Sure You Know About  
**C-FLEX PLANKING**

You're never the same once you know about C-FLEX.

### FIBERGLASS BOATS WITHOUT A MOLD

One small investment of time can save you a lot of dollars. C-FLEX is a revolutionary fiberglass planking developed for amateur & professional boat builders alike. C-FLEX fiberglass planking enables you to build a fiberglass boat without a mold.



### SIMPLE TO USE AND INEXPENSIVE

C-FLEX is a 100% fiberglass material which is unique because it conforms to compound curves without stretching or lifting. Yes, all you need is a simple and inexpensive wooden framework.

### DURABILITY INTERNATIONALLY RECOGNIZED

C-FLEX is durable which means low maintenance. Used to build boats worldwide (governments & individuals) — ranging from ocean racers, yachts, to commercial craft — such as large fishing trawlers, C-FLEX time and again wins high recognition.



"...I've built over 53 C-FLEX boats. C-FLEX allows you to try out new design ideas, and that means a lot to me."

Dave Sintes, boatbuilder

Please rush complete information about C-FLEX:

Seemann Plastics, Inc./P.O. Box 13704, New Orleans, La. 70185, USA/Telephone: 504/482-1178 - Telex: 584 243

adcom

I HAVE had a most interesting chat with Sir Hugh Mackenzie of the Atlantic Salmon Research Trust. This organisation, together with its American counterpart the International Salmon Foundation, is preparing a symposium on salmon on September 26 to 28 at Edinburgh University.

Over 200 bookings from both sides of the Atlantic have already been received. The symposium will be opened by an address from Prince Charles and the five sessions arranged will cover five main topics — the current position in relation to laws and regulations, exploitation methods both legal and illegal, the ecological restraints on stocks, the cultivation of salmon and the best courses for future conservation and development.

Sir Hugh was able to claim an important success for the efforts of the joint salmon protective organisations. Both came into being in 1969 following revelation of the damage to stocks caused by deep water netting operations of fishing craft who had discovered the general run on salmon from Greenland feeding areas back to their home rivers to spawn.

### Netting banned

In response to the campaign for restriction against the proved damage being done by those heavy sea catches to the river stocks in all countries affected, the practice of deep-water ocean netting was collectively banned as from 1976. As a result of the ban, the run back into Canadian rivers in 1977 showed a remarkable rise over past average years and in Scottish and English rivers there was a handsome revival in this year's spring run.

From tagging records and experience it is estimated that the Greenland grounds support 45 per cent of Canadian salmon, the same percentage for Scottish and English stocks and the balance home to French, Spanish rivers and other European rivers.

The symposium will hopefully highlight and reward the efforts being made to conserve and develop stocks. Incidentally admiration of Dr. Edwards' book *Salmon and Trout Farming in Norway* was expressed and Sir Hugh said he would like to see a similar work produced about British activity.

I had to sympathise with Sir Hugh over one point he made. This was the amount of time required to cope with the mass of reading matter which came to him — journals, reports, etc.

## walkabout talkabout

with Arthur J Heighway



investigators are finding available overseas in — particularly in Japan and the Far East.

Down the centuries the Japanese have learnt to use a great range of marine life — such as, for instance, the humble and insignificant sea-urchin. This provides a specialised fishery and a high priced delicacy in the form of the roe eaten either raw or processed. And round the 11,000-mile coast of Australia are many stretches of warm shallow water capable of providing considerable supplies of sea-urchins. And Japan's needs?

### Two teams sent

Ten years ago her live weight catch of local "uni" as they call the sea-urchin, was 27,000 tons. Through over-fishing induced by higher prices, that figure steadily fell and imports from South Korea and USA gradually increased to nearly 25,000 tons in 1977. So Australian investigators of whom two teams have been sent to Japan, see an opportunity for Australian activity.

Already one firm has experimented with trial shipments built on the activities of three divers recruited from the abalone fishery. Requirements are for good quality roe of specific varieties, chilled and air freighted to Japan within 24 hours. Prices are remunerative for speedy delivery of high quality produce.

And that's not all. There's the octopus business. The 200 known varieties are found in all sizes but the one specially liked is in Western Australian waters — *Octopus tetricus*. This grows to some 1½ kilos and the method of catching is by earthenware pots set in strings — customarily 1,800 at a time of which 900 are hauled daily.

Set on new ground, the catch ranges from six to 20 per 100 pots but declines gradually to two to five per 100 pots. By establishment, however, of mig-

Turn to page 47

DISCOVER A VAST TREASUREHOUSE IN THE SEA WITH  
**JMC'S ECHO SOUNDERS AND BOAT EQUIPMENT**



LARGE-SIZED DELUXE ECHO SOUNDERS MODELS 2001 AND 2002  
ROLL paper: 180 mm x 20 m  
Depth fathoms: 0-200  
Variable range: 10-90'  
Variable depth range: 10-90'  
Bottom line & STC controls  
Variable speed: 0-100'  
Variable range: 10-90'  
Variable depth range: 10-90'  
Bottom line & STC controls  
Variable speed: 0-100'  
Variable range: 10-90'

MEDIUM-SIZED DELUXE ECHO SOUNDERS MODELS 1802, 1803, 1804  
ROLL paper: 180 mm x 20 m  
Depth fathoms: 0-200  
Variable speed: 0-100'  
Variable range: 10-90'  
Bottom line & STC controls  
Variable speed: 0-100'  
Variable range: 10-90'

GENERAL PURPOSE ECHO SOUNDERS MODELS 1852, 1853, 1854  
ROLL paper: 180 mm x 10 m  
Depth fathoms: 0-200  
Variable speed: 0-100'  
Variable range: 10-90'  
Bottom line & STC controls  
Variable speed: 0-100'  
Variable range: 10-90'

RECORDER-FLASHER ECHO SOUNDERS MODELS 197-MKII SERIES  
ROLL paper: 100 mm x 16 m  
Depth fathoms: 0-200  
Variable speed: 0-100'  
Variable range: 10-90'  
Bottom line & STC controls  
Variable speed: 0-100'  
Variable range: 10-90'

SMALL-SIZED DELUXE ECHO SOUNDERS MODELS 2028 & 2029  
ROLL paper: 100 mm x 16 m  
Depth fathoms: 0-200  
Variable speed: 0-100'  
Variable range: 10-90'  
Bottom line & STC controls  
Variable speed: 0-100'  
Variable range: 10-90'

WEATHER CHART FACSIMILAR RECORDER MODEL PR-10  
Horizontal and continuous scanning system  
Scanning speed: 60-120 mm/min  
Scanning range: 0-120 mm  
Scanning density: 6 lines per mm.  
Paper speed: 8-32 mm/min  
Model 2028  
Two steps, 8mm & 10mm  
Variable chart speed  
Voltage: 12-40 VDC or 110 VAC  
Power consumption: 65 VA  
Crystal controlled dual paper heterodyne system  
Frequency range: 2-4, 4-8, 8-16 MHz  
A/D converter: Better than 10-12 bits  
Sampling frequency: Better than 100 KHz  
Timing resolution: By pointer  
Clock oscillator: 12 seconds set by NIST

Depth Fathoms Meter  
Shallow 0-100 0-200  
Medium 0-200 0-400  
Deep 0-400 0-800

Depth Fathoms Meter  
Shallow 0-100 0-200  
Medium 0-200 0-400  
Deep 0-400 0-800

Depth Fathoms Meter  
Shallow 0-80 0-160  
Medium 0-80 0-160  
Deep 0-160 0-320

Depth Fathoms Meter  
Shallow 0-80 0-160  
Medium 0-80 0-160  
Deep 0-160 0-320

Depth Fathoms Meter  
Shallow 0-100 0-200  
Medium 0-100 0-200  
Deep 0-200 0-400

Depth Fathoms Meter  
Shallow 0-100 0-200  
Medium 0-100 0-200  
Deep 0-200 0-400

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-80'  
MEDIUM DEPTH RANGE: 80-160'  
DEEP DEPTH RANGE: 160-320'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-100'  
MEDIUM DEPTH RANGE: 100-200'  
DEEP DEPTH RANGE: 200-400'

SHALLOW DEPTH RANGE: 0-1

**Book News**

**Book News**

Fishing News Books Limited specialises in publishing practical books on commercial fishing, fish farming and allied themes.

You can order with confidence on the form below or send for a detailed catalogue to help you choose

		To order cut here
<input type="checkbox"/>	A Living from Lobsters — Stewart	£2.25
<input type="checkbox"/>	Aquaculture Practices in Taiwan — Chen	£5.00
<input type="checkbox"/>	Better Angling with Simple Science — Pratt	£3.00
<input type="checkbox"/>	British Freshwater Fishes — Varley	£3.00
<input type="checkbox"/>	Coastal Aquaculture in the Indo-Pacific Region — FAO	£10.00
<input type="checkbox"/>	Commercial Fishing Methods — Sainsbury	£5.50
<input type="checkbox"/>	Control of Fish Quality — Connell	£6.50
<input type="checkbox"/>	Culture of Bivalve Molluscs — Walne	£5.85
<input type="checkbox"/>	Eel Capture, Culture, Processing and Marketing — Forrest	£7.25
<input type="checkbox"/>	Eel Culture — Usul	£7.75
<input type="checkbox"/>	Escape to Sea — Burgess	£1.00
<input type="checkbox"/>	European Inland Water Fish: A Multilingual Catalogue — FAO	£11.50
<input type="checkbox"/>	FAO Catalogue of Fishing Gear Designs	£8.00
<input type="checkbox"/>	FAO Catalogue of Small Scale Fishing Gear	£8.75
<input type="checkbox"/>	FAO Investigates Ferro-Cement Fishing Craft	£15.50
<input type="checkbox"/>	Farming the Edge of the Sea — Iversen	£13.50
<input type="checkbox"/>	The Fertile Sea — Orr, Marshall	£4.50
<input type="checkbox"/>	Fish and Shellfish Farming in Coastal Waters — Milne	£9.00
<input type="checkbox"/>	Fish Catching Methods of the World — Brandt	£7.75
<input type="checkbox"/>	Fish Farming International No. 2 — Hjul	£3.00
<input type="checkbox"/>	Fish Inspection and Quality Control — FAO	£15.50
<input type="checkbox"/>	The Fish Resources of the Ocean — FAO	£14.00
<input type="checkbox"/>	Fisheries Oceanography — Heia, Leavastu	£8.00
<input type="checkbox"/>	Fishery Products — FAO	£19.75
<input type="checkbox"/>	Fishing Boats of the World 1 — FAO	£14.00
<input type="checkbox"/>	Fishing Boats of the World 2 — FAO	£15.00
<input type="checkbox"/>	Fishing Boats of the World 3 — FAO	£14.00
<input type="checkbox"/>	Fishing Cadet's Handbook — Hodson	£2.00
<input type="checkbox"/>	Fishing Ports and Markets — FAO	£14.00
<input type="checkbox"/>	Fishing with Electricity — FAO	£6.00
<input type="checkbox"/>	Fishing with Light — FAO	£3.75
<input type="checkbox"/>	Freezing and Irradiation of Fish — FAO	£15.00
<input type="checkbox"/>	Handbook of Trout & Salmon Diseases — Roberts, Shepherd	£6.00
<input type="checkbox"/>	Handy Medical Guide for Seafarers — Scott	£2.00
<input type="checkbox"/>	How to Make and Set Nets — Garner	£3.00
<input type="checkbox"/>	Inshore Fishing — Its Skills, Risks, Rewards — Judd	£3.00
<input type="checkbox"/>	International Regulation of Marine Fisheries — Koers	£6.50
<input type="checkbox"/>	The Lemon Sole — Rae	£2.50
<input type="checkbox"/>	Marine Pollution and Sea Life — FAO	£20.00
<input type="checkbox"/>	The Marketing of Shellfish — Nowak	£5.50
<input type="checkbox"/>	Mechanization of Small Fishing Craft — FAO	£2.50
<input type="checkbox"/>	Mending of Fishing Nets — FAO	£3.50
<input type="checkbox"/>	Modern Deep Sea Trawling Gear — Garner	£6.25
<input type="checkbox"/>	Modern Fishing Gear of the World 1 — FAO	£14.50
<input type="checkbox"/>	Modern Fishing Gear of the World 2 — FAO	£14.50
<input type="checkbox"/>	Modern Fishing Gear of the World 3 — FAO	£14.50
<input type="checkbox"/>	Modern Inshore Fishing Gear — Garner	£5.50
<input type="checkbox"/>	More Scottish Fishing Craft — Wilson	£3.50
<input type="checkbox"/>	Multilingual Dictionary of Fish and Fish Products — OECD	£16.00
<input type="checkbox"/>	Navigation Primer for Fishermen — Howell	£5.75
<input type="checkbox"/>	Netting Materials for Fishing Gear — FAO	£2.50
<input type="checkbox"/>	Pair Trawling and Pair Seining — Thomson	£12.00
<input type="checkbox"/>	Planning of Aquaculture Development — FAO	£4.80
<input type="checkbox"/>	Power Transmission and Automation for Ships and Submersibles — Datz	£12.00
<input type="checkbox"/>	Refrigeration on Fishing Vessels — Merrill	£3.50
<input type="checkbox"/>	Salmon Fisheries of Scotland — ASDSFB	£2.00
<input type="checkbox"/>	Salmon and Trout Farming in Norway — Edwards	£9.00
<input type="checkbox"/>	Seafood Fishing for Amateur and Professional — O'Farrell	£3.50
<input type="checkbox"/>	Ships' Gear 66 — Hind	£8.50
<input type="checkbox"/>	Sonar in Fisheries — Tucker	£4.00
<input type="checkbox"/>	Stability and Trim of Fishing Vessels — Hind	£3.00
<input type="checkbox"/>	The Stern Trawler — Hjul	£9.00
<input type="checkbox"/>	Stocks of Whales — Mackintosh	£4.25
<input type="checkbox"/>	Testing the Freshness of Frozen Fish — Gould	£3.50
<input type="checkbox"/>	Textbook of Fish Culture — Huet	£5.00
<input type="checkbox"/>	Trawlermen's Handbook — Oliver	£6.20
<input type="checkbox"/>	Tuna: Distribution and Migration — Nakamura	£3.00
<input type="checkbox"/>	Underwater Observation Using Sonar — Tucker	£4.00

To: Fishing News Books Limited, 1 Long Garden Walk, Farnham, Surrey, England.  
(Tel. Farnham 26868)  
(Registered in England No. 412078. Reg. Office: Lee House, London Wall, London EC2).

Please forward the books marked which cost £.....  
Plus 5% for packing and postage £.....  
Total enclosed £.....

Name .....  
(use block letters please)  
Address .....  
Signed ..... Date ..... Ref. FNI/9/78  
 Tick here if FREE CATALOGUE only is wanted

## walkabout talkabout

continued from page 45

ration patterns of the octopus the yield will hopefully increase. A bonus of this fishery is that it reduces the damage done by the octopus on the rock lobster harvest — estimated at costing a million dollars a year.

Big business is already done by Australia in rock lobster export largely to USA which also goes most of the huge output of the prawn industry in the Gulf of Carpentaria. This was discovered and developed largely through the foresight of Dr. Geoff Keast who was with FAO in our early days. It has grown to major volume but valuable research work is still being done on it to secure maximum information about the breeding and migration habits of the six commercially profitable varieties amongst the 30 odd types of prawns found.

Details of that research are quite fascinating. Carried out by Australia's home-bred and trained scientists it aims at establishing the life cycle and migratory habits of the principal commercial varieties of prawns. By well designed equipment and skilled manipulation the successful rearing of prawns through the larval stages has been accomplished. Outcome of this will aid determination of spawning grounds and migratory routes and thus steadily facilitate profitable fishing.

The story of this research strongly highlights the tremendous importance of the aid that science is now called upon to give to commercial fishing. Australia has the resources to cope with that problem but her work will also benefit many of the smaller

tropical and semi-tropical areas of the Pacific Ocean and Eastern waters. Some of these may be able to benefit from small specialised fisheries in their waters. Science will find many opportunities here as time goes on.

New Zealand has one such small specialised local fishery which deserves mention simply because of its uniqueness! This is the toheroa — source of what many believe to be the finest soup in the world. It is a shellfish found only on a few beaches on the West coast of the North Island — especially on the Ninety Mile beach — which is quite a stretch! As the tide floods the beaches the toheroa comes up from its home in the sand and, feeding on plankton and minute algae, builds its strength. That strength is shown in its rapid search for safety from the seeking spade. An earlier Prince of Wales described its soup as the finest in the world but one attempt at specialised marketing failed because, being packed in glass jars, the green colour derived from seaweed did not attract consumers!

Not to be outdone, the USA can enter the tests of potential new developments by citing that her scientists have reported her coasts can provide 47 varieties of seaweed capable of being cultivated for edible use!

\* Tail piece. PUSH is likely to open most doors if judiciously used — save those marked PULL.

Iver Christensen introduce their new Midwatertrawl

For faster towing speed the Midwatertrawls are now made with 128 inch mesh (1600mm half mesh) in the wings and first section of belly, or with rope wings and 128 inch mesh in first section of belly. The big mesh or the ropes will also help with the jelly-fish problem. The nets are fitted with stainless steel combination ropes for better opening and more stability, and are easy to handle through the power block. This net is presently being used by Danish and Swedish vessels in the Kattegat and Skagerrak waters with great success. The net can be made either for pair or single boat trawling and will be ideal for herring, mackerel, sardine and blue whiting fishing.

If you want the best and most advanced gear contact us now for quick delivery:

DK-9990 Skagen, Denmark  
Tel: 08-441477  
Telex 87524

## SPEED, POWER AND MANOEUVRABILITY

Manoeuvring in tight spots is always a problem for fishing vessels, freighters and tugs which are only equipped with a fixed propeller and an ordinary reversing gearbox.

Multi Pitch propellers provide a perfect solution. Simply by adjusting the propeller pitch you maintain total and precise control over a vessel's movements in the water.

An additional advantage is that you can choose either maximum speed or maximum power, depending on which you need. This too is done by simply varying the pitch of the blades.

The Multi Pitch unit also makes good economic sense because it means you never have to overload the engine by forcing it down to a lower RPM when cruising at reduced speeds.

If you would like to know more about our Multi Pitch propellers please phone or write for our free colour brochure.

Please send me some further information on Multi Pitch propellers.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

Send this coupon to:

Anglo Dansk Marine Engineering Co Ltd.  
Robinson Lane Fish Docks  
Grimsey, DN31 3SF  
England.  
Phone: 0472 51457-51458 Telex: 527323  
Or contact:

Hundested motor & propeller fabrik A/S  
Slæsby 1 DK-3790 Hundested Denmark Phone: 031-337117  
Cable: Propeller Telex: 40245 (Hund Dk)



KaleidoScope code



**INCREASE PROFITS  
IMPROVE QUALITY**  
with the  
**General Automatic  
FISH SCALING MACHINE**

No concentrated weight applied to fish—the machine will not cut or rip the fish, or break down the structure of the flesh.

Capacity 5,000 - 9,000 lbs. per hour, depending on size and type of fish.

Self adjusting—Easy to clean.

Will operate on either salt or fresh water.

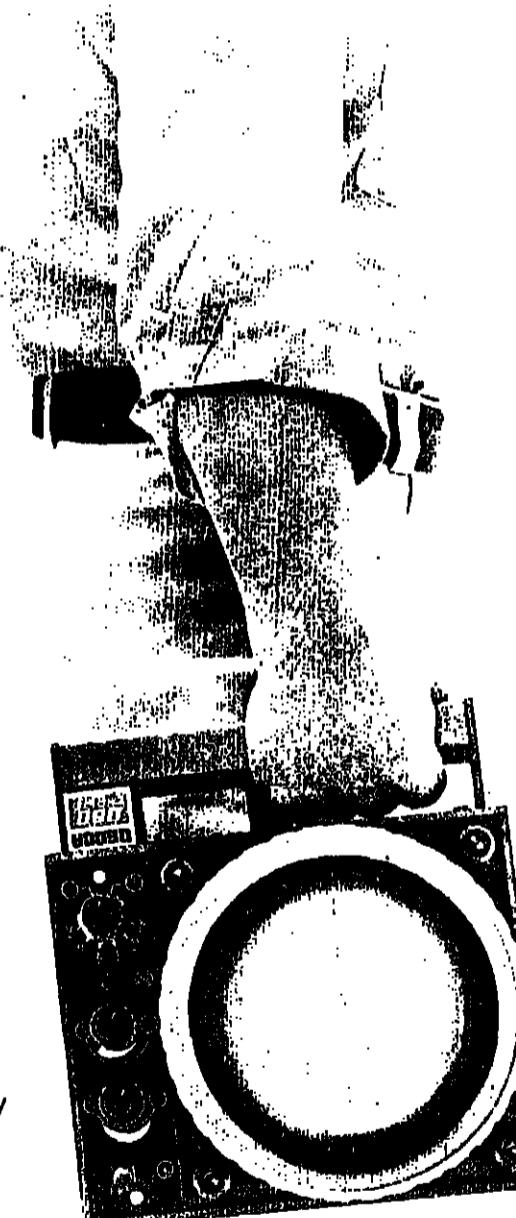
*Full details available from:*

**THE GENERAL  
FISH MACHINERY CO. INC.**  
105 Foundry Street, Wakefield  
Mass. 01880, U.S.A.  
Cable address G.F.M.

# Fish plan boost for Pakistan!

Sorting out the catch on a beach in Baluchistan. Picture by FAO.

**No other radar  
packs so much  
performance  
into such little  
space.**



**THE PERFORMANCE—**

- Outstanding range performance on 6 range scales
- Full 24 n.m. range performance
- Short range scales of 0.5, 1.5 and 3 n.m.
- A very long 0.65 microsecond pulse for strong echoes at long range (and on 3 n.m. for the fisherman)
- 0.1 microsecond short pulse for excellent echo discrimination down to 25 yards.
- Crystal protection with TR cell.
- Slotted waveguide aerial for good side-lobe performance; horizontally polarised to ensure radar reception.
- Display has standard magnifier for 8 inch picture.

**THE 'LITTLE SPACE'—**

- Compact, light-weight units, — with pedigree good looks — easy to install.
- Small radome scanner unit (only 57 lb), particularly suitable for sail boat and fishing boat installations.
- Compact display (only 18 lb) for the small wheelhouse
- Portable for taking ashore or dual station use.

**The Radar-  
DECCA 060  
of course!**

Backed by Decca's world wide service organization and the seagoing experience from over 79,000 marine radars of every type.

**DECCA**

Decca Radar Limited, Albert Embankment, London, S.E.1.

IN ITS five-year plan for fisheries covering the period 1978 to 1983, the government of Pakistan is aiming at an increase in output from 257,000 tons in 1978 to 344,000 tons in 1983. The catch in 1977 totalled 249,000 tons, valued at Rs 409.1 million (£22 million).

To help implement this plan, Rs 411 million has been allocated to fisheries over the period.

Marine fisheries accounted for 216,000 tons of the 1977 catch, up from 177,000 tons in 1976.

### Fishing harbour

To boost production in this sector, special attention will be given to the Mekran coast. The plan provides for continuation of the work on a fishing harbour at Gwadar in Baluchistan province.

Facilities at Pasni, Sonami, and Jiwani will be improved. Karachi fish harbour will be extended to cope with an increase in fishing vessels.

A feasibility study of tuna catching, processing and marketing revealed that the Arabian Sea and Gulf of Oman contain under-utilised resources. The five-year plan therefore provides for a pilot project for exploiting these fish.

### Inland waters

Production of inland fisheries in 1977 totalled 33,000 tons. With a water area for inland production estimated at around eight million acres, it is believed that proper use of resources could push the yield beyond 200,000 tons. Inland fisheries therefore feature prominently in the plan.

It includes further development of small-scale fish farming. More hatcheries will be set-up and possibilities for raising fish in water logged areas and brackish waters will be explored.

To provide help and advice on these and many other aspects of Pakistan's fisheries, a Central Fisheries Development Institute is to be established.

## INDIA GOES DEEP SEA WITH THAIS

TATA Oil Mills (Tomeco), a member of the group controlled by Tata and Sons of Bombay, has added a new dimension to deepsea fishing off India by launching large-scale operations in the Bay of Bengal and near the Andaman Islands.

The company expects to export its catches to Thailand and other countries in South-east Asia.

This initiative has been made possible, says *FNI*, correspondent Trevor Dreierberg, because the Indian government allowed the company to charter 25 trawlers from Thailand for one year.

Tomeco has obtained 12 boats under this scheme and has already started operations. The remaining vessels are expected to come into the area within the next few months.

### Trawlers

Protagonists of this deepsea venture, the largest of its kind so far in India, say that it will do much more than earn foreign exchange. It will also help to train Indian crews in the techniques of deepsea fishing. And this could eventually enable Tomeco to buy and run its own fleet of modern fishing vessels.

# OIL MONEY FUNDS MIDDLE EAST PROJECT

A PROJECT which should give strong impetus to fishery development in the Red Sea and Gulf of Aden has been signed at FAO headquarters in Rome.

It will be financed mainly through OPEC with a contribution from the UN Development Programme. Countries involved are Egypt, Jordan, the People's Democratic Republic of Yemen, Saudi Arabia, Sudan and the Yemen Arab Republic.

Fisheries in the region are estimated to have a potential yield of 500,000 tons or more a year.

The immediate objectives of the project include determining the distribution and abundance of major stocks of fish, selecting the type of equipment best suited for harvesting them, determining the supporting programmes needed (such as harbour improvement, boatbuilding and repair, service facilities, etc) and the training needs at various levels.

### Regional

Each participating country will adopt a "regional approach" in planning the co-ordinated development of its fisheries. The regional approach is needed because of the common nature of the resources, the need for common methods of survey, analysis and evaluation, and the free flow of information and the exchange of experience.

Planned for a period of 2½ years, the project results from investigations started in late 1975 by an FAO mission.

### Red Sea

On the basis of earlier surveys, the mission concluded that the Red Sea could yield a harvest of some 200,000 tons a year compared with about 50,000 tons at present. The richer waters of the Gulf of Aden could probably yield more than 300,000, up from 140,000 tons.

The area covered by the project lies within latitudes 10° to 30° N and longitudes 32° to 52° E.

Resources in the area are exploited mainly by artisanal fishermen using their traditional small wooden craft and primitive gear. Most of the increase in catch is expected to consist of smaller pelagic species.

Development of the fisheries, bringing in modern vessels and shore-based industries, should not only increase fish supplies for consumption by the local people and for export but will create jobs and lead to a general improvement in living standards.

The project will be located in the area, with a headquarters and sub-stations, and will be monitored by a steering committee.

The small flowered open boats suitable for trolling, hand-lining, potting and gillnetting used in the demonstration fishing and training.

ing will be moved from location to location.

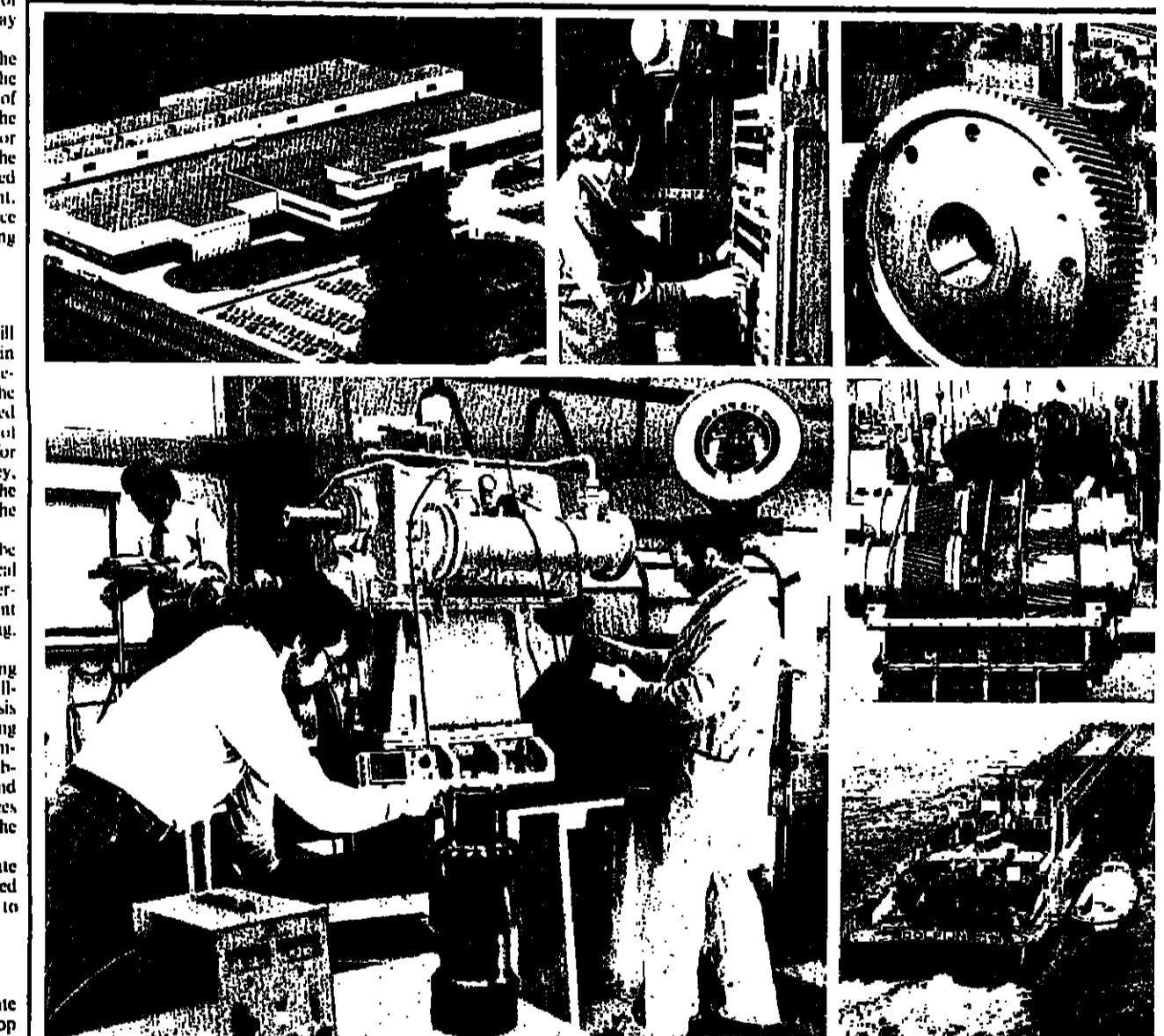
In view of the ambitious scope of the project and the underdeveloped state of the fisheries in the area, as well as the limited availability of personnel with the technical knowledge and experience required for rapid development, further effort is envisaged to realise eventually the potential of the resources.

As the project document concludes, this first step toward that end "is designed primarily to improve the required infrastructure and to provide on-the-job training in order to expand the existing fisheries facilities in the area."

This is a realistic and practical approach to development which could well lead to industrial investment in fisheries in the area.



Netting a catch using two boats off Aden in South Yemen. The People's Democratic Republic of Yemen is one of the participants in the project.



## The result: More safety for the ship propulsion

REINTJES has been manufacturing ship's gearboxes since 1929. More than 60,000 units have been commissioned until now. Today REINTJES gearboxes can be found aboard of vessels operating on all waterways of the world.

This is truly a proud indication of success stemming from 50 years of experience. We do not, however, rest on this success, but are working hard for improvements in the ship's gear manufacture.



Eisenwerke REINTJES GmbH  
P.O. Box 567, D-3250 Hameln  
Phone 05161-104-1, Telex 092862  
German Federal Republic

**REINTJES**

## Watching the boat

A LOW-COST vessel safety monitor has been introduced by Paragon Electronics of Bellevue, Washington, USA.

This provides continuous monitors of up to six sensors. It can watch over engine temperatures, pressures, bilge level or air temperature.

If it detects a failure, it gives an audio and a visual alarm.

Paragon also makes a 12-channel and an 18-channel monitor.

Further information from Paragon Electronics Corporation, PO Box 1456, Bellevue, Washington 98009, USA.



# MONEY IN FISH PUMP WATER

DELIVERY will start in November of the first plants in the largest order for fish processing equipment ever received by the Swedish company Alfa-Laval.

As reported briefly in *FNI* in August, this has been placed by the state fish meal company Pescaperu. It is for 14 recovery plants for

protein and oil from pump water and is worth about US\$10 million.

The plants will be used by the fish meal industry as part of its drive to reduce waste from catches and to cut down pollution.

They will treat the water used when fish are pumped from the boats to the factories. During the pumping, the water picks up fish particles and fish oil. When discharged into the harbour this is a loss of valuable materials and also causes a pollution nuisance.

"For many years," says Alfa-Laval, "we have been aware of the problem. We have carried out extensive tests and have also built a full-scale test plant to solve it."

These tests were concluded in 1974-75. Then, early in 1977, Alfa-Laval began serious discussions with Pescaperu and they led to the placing of the order in June this year.

### Commerce

Beginning in November, delivery will be at the rate of two plants every second month. Alfa-Laval will be responsible for erecting and starting up the plants.

Included in the order are 28 separators, 31 drum drains made by Celleco and 45 pumps from JMW, both members of the Alfa-Laval group.

Describing the process, Alfa-Laval says that in the recovery systems large amounts of water — up to 350 cubic metres an hour — will be treated. "That is why the plant is based on a combination of static separation and centrifugation. In order to improve the static separation and to recover the suspended fish substances as quickly as possible, a number of self-cleaning, rotating strainers are inserted in the system."

### Complete

From its inlet, a complete plant consists of feed pumps, rotating strainers, drum drains, settling tank for separation of oil (with separator, filter and solids-ejecting centrifugal separators).

After discharging, the tank is emptied and the remaining fish substance collected on the bottom of the tank is pumped through the heater (which functions as a fish cooker) to the meat factory's processing separation plant.

"In this way," adds Alfa-Laval, "practically all suspended fish substances and a very great deal of the oil is recovered."

According to Marco, as few as two people can fish longline gear with the Tiliner system.

### Composition

"The quicker the fish substance can be treated, the higher the quality of the product from it. Since the process is continuous, recovered suspended material will be as fresh as the fish, but the composition will be somewhat different."

It is also intended that the new plants will get rid of impurities in the oil as soon as possible and thus reduce free fatty acids. Values as low as 2.5 per cent FFA have been obtained.

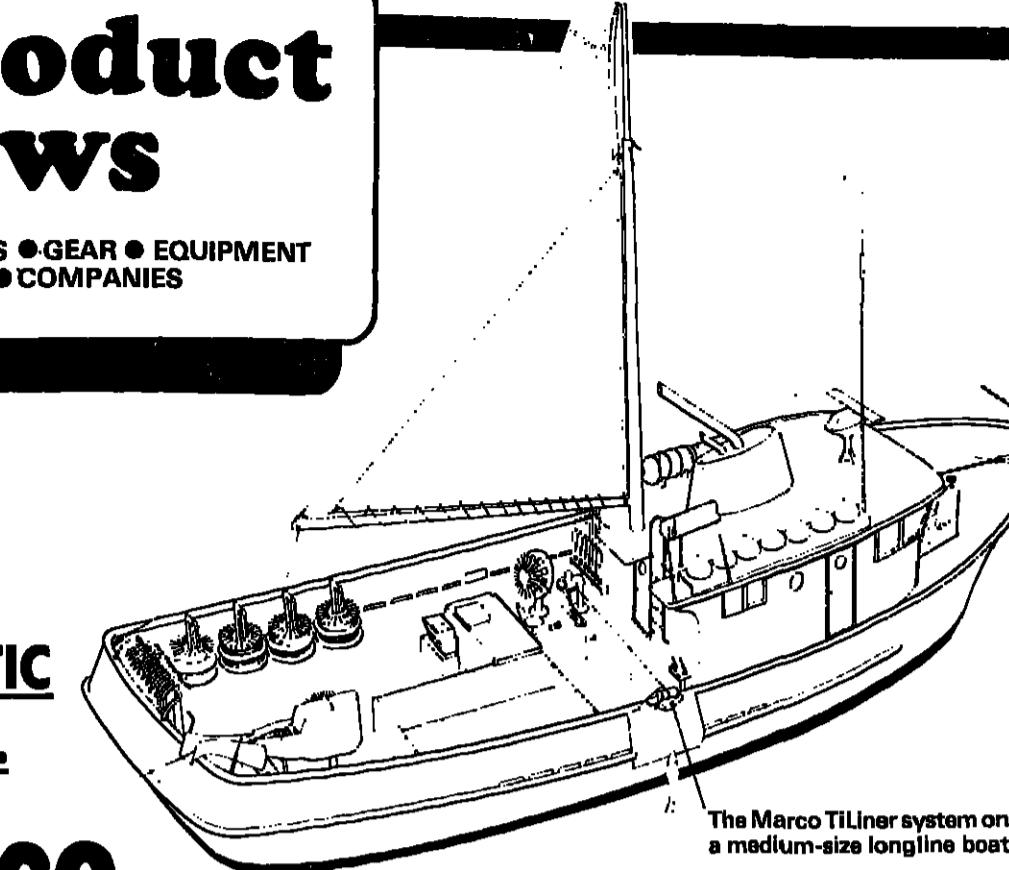
"By using the new system," says Alfa-Laval, "yield of fish meal and oil will be increased by at least six per cent."

## product news

METHODS • GEAR • EQUIPMENT  
• PLANT • COMPANIES

### COMING UP WITH THE AUTOMATIC ANSWER...

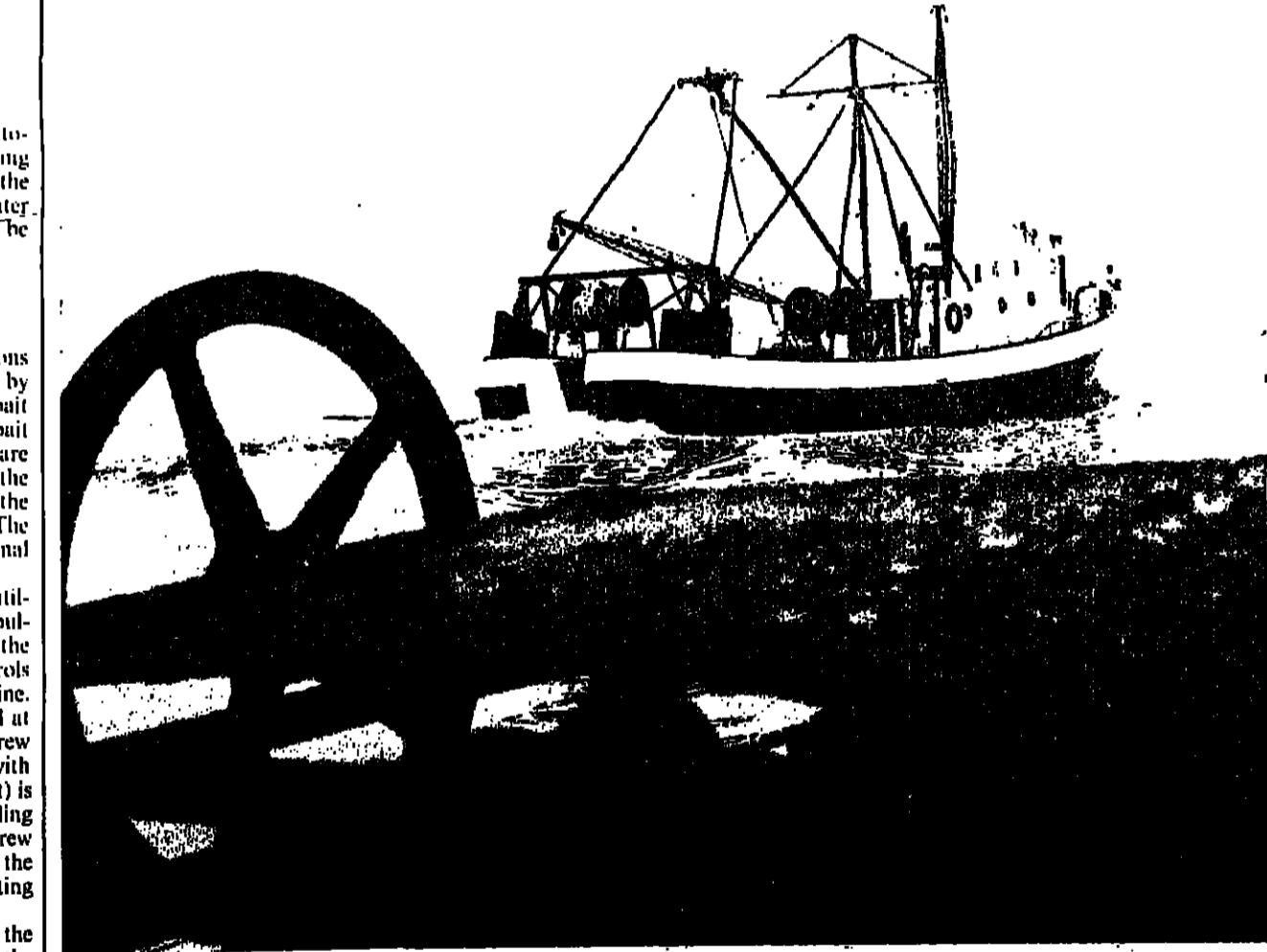
## Marco mechanise longlining



The Marco Tiliner system on a medium-size longline boat

# FISH EXPO '78

NORTH AMERICA'S INTERNATIONAL COMMERCIAL FISHING EXPOSITION



- Over 8000 buyers from major U.S. and overseas fishing areas.
- Over 300 exhibits featuring the world's leading manufacturers
- The latest commercial fishing gear and processing equipment
- Full program of seminars and workshop

## NOW TRAWLERS FIT GRP TANKS

**HYDROGLAS** section water storage tanks, made by BTR-Permal RP Ltd., have already been installed on hilltops and down mountainsides. Now they are going to sea in trawlers.

In the British trawler *Norina* (owned by Marr), a Hydroglas tank is used to store livers. The non-corrosive GRP panels of the tanks enable them to be kept clean without deteriorating.

The sectional construction helped during installation in the ship,

because the access to the working site was too restricted to bring in the complete tank.

This, coupled with good performance in the *Norina*, led her owners to specify Hydroglas tanks for three other trawlers.

Further information from BTR-Permal Ltd., Hydroglas Works, Bristol Road, Gloucester GL1 5SU, England.

FOR INFORMATION AND HOTEL RESERVATIONS CONTACT  
National Fisherman Expositions, Inc.  
21 Elm St. Camden, Maine 04843 USA  
(207) 236-4344

Cable: NATFISH, CAMDEN, MAINE USA

## PLAN NOW TO ATTEND

Availability of exhibit space is extremely limited. Contact Fish Expo headquarters immediately for details.

## Warmth in a small craft

THE British firm Webasto has introduced two new heaters designed for use on small craft and to work in conjunction with a small bore central heating system.

The new units are the DBW2010 (output of 9.3kW) and the WO2352 (4.7kW).

Both units use diesel fuel which is claimed to be safer and cheaper than gas heating systems.

The larger unit has a pump to circulate the water through the system and gate valves are fitted to isolate each section for service.

### Heating elements

A variety of heating elements are available including panel radiators, fan-assisted heat exchangers and a hot water tank with an indirect heating coil.

The domestic hot water system is powered by a Jabsco pump and can supply both hot and cold water taps and a shower.

Both models can incorporate all the refinements of normal house heating systems including time switches and thermostats.

# Classified advertisements

## Vessels for Sale

### M.V. "INKFIS" II

Entirely rebuilt 8/1978 for DIVING PURPOSES. Built 1963. 500hp Stork marine diesel. Six double cabins each with shower, washing basin, locker. Deck saloon and divers galley, electric stove, air conditioned all over. Crew accommodation for six men, captain's cabin on bridge. Prompt delivery possible.

Please apply for further information to:

### R. W. BAIS N/A

Maritime Handels — en Ingenieurs Bureau, PO Box 178, Spearmwouderstraat 36, Haarlem, Holland.

## INTERESTED IN A GOOD STEEL BOAT?

Then please contact:

### JOHN APPELBOOM

Bilddyklaan 9  
Driehuizen-Velsen  
Holland  
Tel. Ymuiden (2860) 18850  
Telex 41700  
Cables: Appy Ymuiden

Your direct link with the Dutch market for both second hand and new building fishing vessels and other craft

## Insurance

### SALVUS, BAIN (Management) LTD.

Over 2,000 skipper-owners insure their vessels and/or crews with us.

For particulars write:

5 The Esplanade,  
Sunderland,  
Tyne & Wear,  
SR2 7BQ,  
England  
Tel. Sunderland (0783) 42651  
(10 lines)

## Engines wanted

### WANTED USED GARDNER DIESEL ENGINES

from 84hp to 230hp  
with or without propeller  
gear.  
PLEASE RUSH REPLIES  
TO BOX NO. 924

## fishing news international

### CLASSIFIED ADVERTISEMENT ORDER FORM

Please insert my advertisement in:  INTERNATIONAL FISH MARKET  
 CLASSIFIED SECTION

Number of insertions and months

Name

Address

Please Bill me  
 Payment Enclosed

Tel. 01-353 6961  
Telex: 21977

Advertisement to be printed as:  SEMI-DISPLAY (minimum 3cm x 1 column)  
(See top of facing page for rates)  LINEAGE (Print text below)

## DISCOUNTS FOR 6 INSERTIONS: 5% FOR 12 INSERTIONS: 10%

RATES: 80p per line, minimum £3.00  
£2.28 per single column centimetre,  
minimum £6.84  
Box No. 60p

All advertisements must be received by the last Tuesday of the month for next issue.

## Wanted

### MACHINERY, MFV's, FISH

Wanted all makes marine diesel engines and also Baader machines and processing equipment etc.

### FOR SALE

Fish processing "Baader" etc., machinery and MFV's.

Fish — top quality inshore whole fish, processed fish and smokers.

### E.C.T. INTERNATIONAL

WILSON STREET,  
PETERHEAD,  
SCOTLAND

Telephone 3222/3

after hours 738261

Cromer Bay 618

## Services

### CONSULTING PESCA & DESARROLLO INDUSTRIAL, S.A.

Fishing and General Industrial Consultants and Engineers

P.O. Box 870  
Vigo, Spain

Telex 83203 cpdi e

Phone 86-285400 (5 lines)

Fishing and General Industrial

Fishing, processing, feasibility

studies for fleet and shore

processing facilities.

Preparation of Joint Venture Projects.

Temporary supply of technical staff.

Brokers of new and second hand vessels and industrial equipment.

## For Sale

### PROPELLION



### NOZZLES

No fishing vessel is complete today without a propellion nozzle which gives lower fuel costs or better gear handling capability vital advantages.

BCP provide a service tailored to suit your ship — whether new or existing:

For instance, complete design drawing packages for the shipowner if it wishes to produce its own nozzles — a most economical method.

Or arrangement of supply by specialist contractors of first class ICP designed and approved nozzles at most competitive prices.

BCP designs fishing vessels as well as nozzles and can integrate designs in the best way based on extensive experience. Many nozzles have been designed by BCP for its own fishing vessels and others.

Write for information (without obligation) to:

### BURNESS, CORLETT & PARTNERS LTD.

Shipdesine House,  
Ramsey,  
Isle of Man.

Tel: (0624) 813210  
Telex: 628529 BCPMAN

Worting House  
Basingstoke  
Hants  
England

Tel: (0958) 64742  
Telex: 858104 BCPBAS

## GROUND ROPE RUBBER DISCS

All sizes

### RUBBER BOBBINS

14in., 18in. and 21in.

### FISHING IRONWORK

Of all descriptions  
Prompt delivery

### E. BONSALL (Trawler Fishing Gear)

13 Maltravers Street  
Sheffield 4  
Yorkshire  
England  
Telephone 0742 23559

### Boat Transport

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. F. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam delivered to any port in the world.

Many reputable references for delivery to British ports, European and American ports.

Mr. J. J. Fawcett

"Kittiwake," 8a Ronald Avenue,

Conway Island, Essex, SS8 7QT, U.K.

Tel. Conway 3044.

FISHING VESSELS, diesel or steam